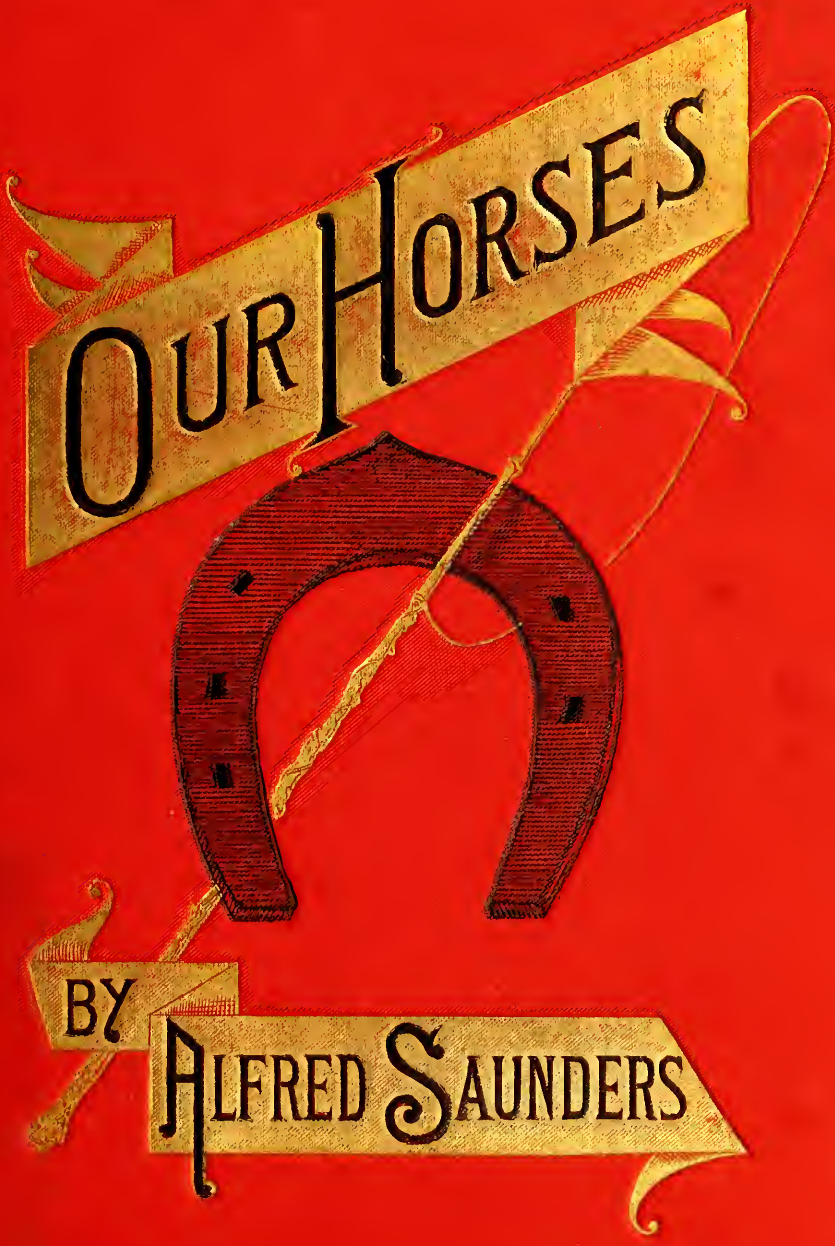

OUR HORSES

BY ALFRED SAUNDERS

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OUR HORSES:

OR,

THE BEST MUSCLES CONTROLLED BY THE BEST BRAINS.

BY

ALFRED SAUNDERS.

"PERFECT KNOWLEDGE OF NATURE WOULD MEAN SOMETHING LIKE
ABSOLUTE CONTROL OVER NATURE.'

LONDON:
SAMPSON LOW, MARSTON, SEARLE & RIVINGTON,
188, FLEET STREET, E.C.
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PREFACE.

A Bristol youth whose theological education had been much neglected, was once asked by his Sunday School teacher, in the words of a catechism, "What is the chief end of man?" Feeling his intellect insulted by a question, the answer to which appeared to him so very obvious, the boy indignantly replied, "Why his head to be sure." This answer was not received with much favour by the teacher, but it nevertheless contains a very important truth, and one which man is too prone to forget, especially when dealing with animals whose head can hardly be considered their "chief end." His dealings with the horse have not always illustrated the truth of Cowper's lines :—

> "'Tis plain the creature whom He chose to invest
> With kingship and dominion o'er the rest,
> Received his nobler nature, and was made
> Fit for the power, in which he stands arrayed."

The unexampled progress of our countrymen in beneficent civilization during the last sixty years, has been mainly due to the fact, that even the toilers amongst us have learned to use their "chief end" more, and their inferior ends less.

With more peace, more food, more leisure, and more education, even our agricultural labourers have asserted their right to be something more than hewers of wood and drawers of water; have sought and have obtained improved tools; and now willingly leave the lowest and most severe drudgery to the water wheel, the steam engine, and the horse.

The descendants of the poor mistaken men, who, fifty years ago, were burning the farmers rude thrashing machines, and demanding that their ill-fed muscles should replace those of the ox or the horse, are now quite able to see that their elevation must come in the opposite direction, and that their own heads must take, at least, a part in the ascent.

They now earn the price of three bushels of wheat with less effort than their ancestors earned the price of one. They have learned to toil less and to accomplish more. They no longer demand to raise their weary arms in a physical competition with the strength of the ox, or the power of the steam engine. They thrash, but not with the flail ; they dig, but not with the spade ; they mow, but not with the scythe ; they reap, but not with the sickle ; they grind, but not as Sampson ground.

A few minutes thought of what the world would be without the horse, leads us to a true estimate of his value, and enables us to realize what our lives would lose of pleasure, power, profit, and picturesqueness, without the animal that brings such great, yet such controllable powers to our aid.

Our earnest aim in the following pages has been to help on the triumph of mind over the agencies placed at its disposal ; to put the best muscles completely under the control of the best brains, and to show that unthinking brute force is not the weapon with which man can hope to make the best of his most willing and most timid servant, the horse ; but that his superior intelligence, applied in a spirit of humanity to the relationship, will make this powerful ally far more useful and more happy than he is now found to be.

By carefully observing the nature and peculiar instincts of any animal in our charge, and meeting them with some humane resources within our reach, we can generally insure obedience to our will, cure most of his bad habits, and secure our own safety by some simple stratagem. We only convert his eccentricities into formidable dangers when we combat them with unmanly cruelty.

We are only too conscious that no effort, literary, legislative, or moral, will ever keep the horse from falling into hands unfit to arbitrate the fate of any sensitive creature.

From the nature of things the most worthless and the most heartless are attracted by the tricks, and atrocious barbarities, adopted by the blacklegs among horse dealers. But enlightened self-interest is the most powerful, and by far the most generally applicable antidote to cruelty, and should, at least, save the young horse from the injuries of ignorance, and to him ignorance forms the most substantial danger.

Let breeders and owners sufficiently understand that the education of the young horse is no question of craft, mystery, or even skilled horsemanship ; but demands temper, judgment, tact, and qualities only to be found in a superior class of men, and we may hope to see fewer cruel mistakes, and consequently losses in that direction. With horses educated under the eye of those who know how it should be done, and who have a direct pecuniary interest in the result, an entirely different system would be adopted, with results that would not be uncertain, either humanely, morally, or commercially.

After seeing the horse, both tame and wild, reduced to obedience by men of various degrees of civilization, in every quarter of the globe, our aim has been to select the system that would give us the best possible horse with the least expenditure of time and trouble. In this we have succeeded beyond our most sanguine expectations, and by the most humane and simple means We therefore record these methods for the benefit of the horse and its owner, certain that, if faithfully carried out, they will not fail to contribute to the welfare and happiness of both.

For the harness horse we have entirely and invariably succeeded in preventing that vice which has caused the greatest exhibition of cruelty, and the greatest depreciation of value, from which he has ever suffered, and we have the satisfaction of knowing that the adoption of our advice would remove a weight of suffering from the horse, and a load of sin from his owner, that would make the world less sad.

If we have forsaken the beaten paths of orthodox horse management, and called in question the teachings of those who have long been looked up to as great authorities, our defence must be, that for half-a-century we have gone to a greater Teacher, and have been shewn that they were wrong.

Very slowly, very reluctantly, but very surely, we have lost our faith in long cherished theories and practices, and have learned from Nature, and to bow only to the unanswerable logic of facts.

Where the results have been constantly and strikingly good, we have concluded that the course practised must be good also.

In judging of the value of our work, we ask our readers to try it by the same rule. Let our advice be tested by the unerring records of careful practice, and we confidently leave the estimate of our work to the result of that unbiassed testimony.

It is usual to acknowledge the sources of any information that the author has been able to utilize ; but, so far as it is possible, we have done that in the text of the chapters before us. We say, as far as possible, because it is not possible for the human mind to ascertain all the aids that have led up to its present degree of knowledge upon any subject. Where we could recollect the source we have gratefully recorded it, whether from great names, like Sir J. Forbes, Dr. Dadd, or Professor Rarey, or from a humble American Indian, a Gaucho, an Australian stockman, or a simple Maori family.

Our readers will see that we have thus literally become a "debtor both to the Greeks and to the Barbarians ;" and, although we have too often proved but a slow scholar, we have had every advantage to be derived from books, from the observation of experts, from a comparison of the different horses and horsemen of the world, from a long practical experience, and from a love of the animal itself, that has been the strongest incentive to our writing the pages of this book.

OUR HORSES.

CHAPTER I.

GENERAL REMARKS.

1.—In the language of zoology, or in the orderly classification of naturalists, the horse ranks under the division vertebrata (having a brain and spinal marrow); the class mammalia (suckling their young); the tribe ungulata (having feet protected with hoofs); and, although his own skin is thin and very sensitive, he is placed under the order pachydermata, or thick skinned, that term being applied to all hoofed animals that do not chew the cud. He belongs to the volipeda family, having on each foot only one undivided hoof.

2.—Such ancient history as we have had handed down to us, gives us singularly little information about so important and useful an animal. Statues and hieroglyphics do not help us much; nor are there any existing herds of wild horses, except those that are known to have originated with animals once domesticated, and which consequently give us no clue to the aboriginal home of the horse. It seems to have formed no part of the possessions of Abraham, Isaac, or Jacob. We first hear of it from Egypt, where, in the time of the dire famine, we read. "Joseph gave them bread in exchange for horses." The waggons, the sight of which revived the spirit of old Jacob, may have been drawn by asses or mules, as more suitable for such roads, and more safe for the conveyance of such passengers as the "wives and little ones." But, when Joseph took back his father's [remains to the field of Machpelah, we are left in no doubt that "there went up with him both chariots and horsemen." Thus we gather that the horse first came from North Africa, and was used in the service of man at least 3,600 years ago. The examination of ancient sculptures has led some antiquarians to the highly improbable conclusion that the horse was long used to draw vehicles before any one ventured to mount on his back. We cannot imagine that generations of men who rode on asses would continue to walk by the side of an animal so much better fitted to carry them, and which they had made docile enough to draw all sorts of frightful things at its tail. It is far more probable that the early sculptors found it more easy to represent a horse drawing something behind him than to place a stone rider gracefully on his back.

3.—Egypt itself is very little adapted for a horse breeding country, but the leading part that she once took in civilisation, and the commanding political position she long occupied, would enable her to draw supplies of them from any part of North Africa. With her great maritime advantages these seem to have been distributed to other parts of the world, horses being a favourite article both of ordinary export, and for royal presents to foreign potentates. Soloman was a large importer of horses from Egypt, and with his wealth, wisdom, and power, he is likely to have secured the best, so that there is nothing very incredible in the Arab tradition that their best horses descend from the stud of Soloman. Mahomet appears to have severely tested the powers of the Arabian mare, and as he would be able to obtain the best, mares that had endured such tests from him, would naturally become celebrated, and thus the Arabs get another starting point in the pedigree of their best horses, more than 1,600 years later than the reign of Soloman.

4.—In point of strict utility the horse must perhaps rank behind the cow, or even the sheep, although in the present state of society it would be more difficult for any nation to take a commanding position, or even to hold its own, without the horse than without either of those animals. In intelligence he has many superiors: the elephant, the dog, the fox, the pig, the rat, the cow, and even the donkey have more brain power, and are far less easily deceived than the horse. Few animals have so little capacity to take care of themselves, or can be made the subjects of such easy and long continued imposition. No other animal submits his physical powers so unreservedly to the service of man, nor can the muscles of any other slave be so constantly and cruelly overtaxed at his command. In fiction, in poetry, and even in real life, he often gets credited with much wisdom and courage, though he is singularly deficient of both, and many cruel mistakes in his treatment result from the supposition that he is far more intelligent and more aggressively courageous than he really is. He is essentially not a fighting but a flying animal, one that trusts to his speed, and not to his sagacity, courage, or aggressive power for his safety. Even when driven into a yard, or otherwise placed beyond the possibility of escape, the wild horse shows no fight, as most other wild animals will do, but still cowers like the timid sheep at the greatest possible distance from any puny pursuer. Completely and continuously gregarious in his habits, the horse never feels so safe, so contented, or so happy as when in company, and his hardest lessons in the service of man are those which confine him to solitary service or solitary confinement, and compel him to face alone dangers that would terrify him even in that companionship which nature has taught him to cling to at any cost of exertion. Even the wounded horse will never voluntarily leave the herd, but gallops with it till he drops, evidently under a feeling implanted in his nature that to be left behind is to be left a prey to some cruel pursuer. This is the simple key to most of the romance we hear and read about the horse enjoying the battle, the chase, and the race. Nature has taught him what she teaches all animals that seek safety in flight and in society, that it is dangerous to be left alone, or to be left behind, a feeling that she has sometimes allowed to seize large bodies, even of that most aggressive animal—man. The vaunted courage of the battle horse is the courage of ignorance and panic. He has with difficulty been taught on parade that sights and sounds that once terrified him are harmless, and he knows no difference between the boltless noise of the blank cartridge and the deadly balls of actual warfare. In the charge the more really terrified he feels the more determined he is not to be left alone, so that each horse madly rushes wherever he believes his companion to be going. His most dangerous vices are the result of his extremely timid nature, which makes him imagine every log to be a lion, every gap in a hedge to be a lurking place for a tiger, and an oppossum rug to be a bear, whilst he flies in frantic terror from a serpent-like leather rope drawn by himself, from the rider dragging in the stirrup, or the carriage wheels rolling behind him.

5.—In silent, patient, unresisting endurance of sufferings from which he has not been allowed to fly he has few equals. He plods patiently on from day to day suffering from heat, cold, starvation, or thirst, until his bones start through his skin, and his wasted muscles can no longer raise him from the ground. He pushes on to the fixed bayonet. He carries his rider without a groan or a pause with flanks heaving for life until he drops dead. No person can be prepared to deal properly with the horse who starts with the too common impression that he has to deal with a cunning, courageous, obstinate animal. He has usually to deal with an animal simple as a baby, nervous as a lady, and timid as a partridge.

6.—In size the horse varies almost from that of the dog to that of the elephant, from two feet to six and half feet high; from two cwt. to one ton in weight; from the mere toy which a gentleman has lifted into his gig, to the gigantic quadruped which starts five tons weight on the London pavement. Fortunately the docility and placidity of the horse generally increases with his size, making the giants often more easy to deal with than the dwarfs. In slower times than the present the finest specimens of the race used to be seen calmly wending their way through the sights and sounds of London streets, attentive to every word that was spoken to them by a self possessed and good tempered driver, who was justly proud of his glossy, magnificent, and obedient team.

7.—Rough stunted ponies are found in the Shetland Islands, and in Iceland, and dry skinned, unhappy, emaciated Arabs and Australian horses are made to endure the heat and insects at the equator, but the horse can only be said to flourish in temperate regions, and reaches his finest proportions only in those countries where green grass can be obtained during the greater part of the year. Even on the vast, dry, though temperate Australian plains where light horses are so abundant and so good, the size of the heavy cart horse cannot be sustained, so that he is regularly imported from the colder climates of Tasmania and New Zealand. There is in the climate of New Zealand something specially favourable to the development both of the cart horse and the race horse. No finer cart horses can be seen in any part of the world than at the New Zealand agricultural shows. Some of the very first race horses bred in New Zealand were from Flora Mc. Ivor, when about twenty years of age, yet they surpassed in speed anything that she bred in her prime in Australia. During the year 1883, a three-year-old colt, bred in New Zealand, and undergoing a voyage to Australia, has carried off the two principal races in Melbourne, in the shortest time they have ever been accomplished. This colt (Martini-Henry) won not only the Derby, for three-year-olds, but the Melbourne Cup, beating a field of no less than 29 of the very best Australian horses of all ages, doing the mile and a half in 2 minutes and 39 seconds, and the two miles in 3 minutes 30½ seconds.

Though capable of his greatest speed and of the utmost endurance when fed chiefly on dry fodder, with a large proportion of corn, the horse only attains his utmost growth, continuous health, and natural age, when fed on somewhat bulky and succulent food.

8.—Under good treatment he reaches his full growth and utmost power at five years old, continues in perfection until twelve, and is capable of moderate work until over twenty. After that age his powers fail fast, although there are a few cases on record in which he has attained the age of forty, and both sexes have been known to retain fertility until after thirty. Excessively fast work over hard roads, excited by stimulating concentrated food, often wears him out in a few months, so that stage coach horses, although skilfully selected, with great natural powers of speed and endurance, only stand their cruel work two years on an average. The more moderate pace of the city omnibus horse enables him to last about six years, although eating 17 lbs. of corn a day, whilst the pampered giants used by the great London brewers, stand their slow work ten years, eating no less than 22 lbs. of corn a day. The ordinary farm horse, eating 10 lbs. of corn a day, and getting a good deal of green food, often lasts twenty years, although under equal treatment the heavy cart horse is naturally a shorter-lived animal than the light coach horse.

9.—In the course of many centuries the climate, the soil, and the requirements of each country, as well as the tastes, opportunities, occupations, and genius of its people, have stamped a peculiar character on the horses produced in it. South East Asia and North Africa have produced the beautiful, wiry, enduring Arab and Barb, the rich plains of Central Europe have grown and fostered the heavy Flanders horse, whilst Great Britain, with its horse-loving population, its grassy soil, its free trade, and its watery high way to all the world, has culled from every country, and cultivated whatever it required, until it has excelled every other part of the world in its racers, its hunters, and its draft horses. London streets and London parks have become the places where the child's pony, the lady's pamlfrey, the gentleman's hunter, the high stepping carriage horse, or the brewer's dray horse, may be seen in the greatest perfection, under the highest discipline, and in the best possible condition. The offshoots of our race in America and Australasia, take the same horses and the same tastes wherever they go, and whenever the horses of the old country are beaten it will be by the descendants of her own stock in the hands of her own children.

Her colonists do not send to Africa or Arabia for their nags, nor to Flanders for their dray horses, but to England for their racers, to Ireland for their hunters, and to Scotland for their draft horses, and for the men to handle them.

CHAPTER II.

VARIETIES OF THE HORSE.

10.—Although there may never have been a period when it was more possible to obtain a horse of any required size or character than it is now, there were far more distinct and definite breeds fifty years ago than there are at the present time.

The immense facilities that the last half century has provided for cheap and rapid communication, both between different countries, and between different parts of the same country, have lessened or destroyed many distinctions that used to exist in the live and dead stock of most parts of the world; have removed many a prejudice, have dropped many an inferior race of animals out of existence, and have, upon the whole, led to the survival of the fittest, and the preponderance of the best. What Bakewell's, Leicesters and Elman's Southdowns have being doing amongst sheep, and the shorthorns amongst cattle, the Clydesdale and the Thoroughbred have been doing amongst horses. The old breeds may still bear the same name, but most of them have really given place to a different animal, produced by repeated crosses of superior blood; or, to use a common expression, they have been "improved off the face of the earth." The old stiff, gummy-legged, short-winded cart horse, is no where to be seen; the fine, ponderous, slow animals, that used to work the family carriage, with the long hair closely cut from their carty legs, have given place to something very nearly thoroughbred; and even the Welsh ponies are now little else than the diminutive descendants of Sir Watkin Wynn's blood sires. The change has proceeded on very different lines in different parts of the world, and generally under circumstances more or less characteristic of the people amongst whom it has taken place. The cool-headed clannish Scotchmen stuck to their Clydesdales through good report and evil report, and would believe in nothing else ; the Yorkshiremen dropped their long-prized Cleveland Bays the moment it did not pay to breed them ; whilst the mixed race of horse breeders in the South West of England used good cart sires wherever they could get them without asking for a name or a pedigree. The South Eastern breeders did nearly the same, but, when they had entirely altered the character of their horses, they still kept the names and colours of their Norfolk trotters, and their Suffolk Punches.

11.—In every temperate part of the civilized world, the English Thoroughbred horse has more or less completely supplanted every other horse for fast work. The despotic Emperor of Austria, the Czar of all the Russias, the horse-breeding Germans, the democratic Americans, the half-Anglicized Napoleon the III., and even the anti-English Popes have all had to use the English Thoroughbred for a sire, or to drop behind the rest of the world with their horses.

The British colonists, on the great continents of America and Australia, adopt the Thoroughbred as their own, whilst the Britain of the South has given it a home in which it will certainly not degenerate.

12.—No competent judge on the subject will doubt that the change on the whole has been good ; yet those who can remember the Cleveland Bays and the old-fashioned Suffolk Punches, cannot but feel that two very useful horses have been rather too hastily dropped, and that we have nothing that entirely supplies the place of either of them.

THE SHIRE HORSE.

13.—The free and unbiassed choice of cart sires, which has long prevailed in most counties of England, has produced what is now called the Shire Horse. A horse of no particular stamp or colour, but a well-built, powerful animal, less soft and slow than the old Black Lincoln, though almost as large and quite as powerful. He is more placid, and carries a better "cupboard" than the Clydesdale, and would take a heavier load, or a heavier furrow behind him, without fretting or making any fuss about it.

The largest of them are naturally bred on the strongest land, and where the heaviest ploughing has to be done. The heaviest and most handsome of these are picked out for heavy, slow, showy, city, or railway work, which they do to perfection. On a moderately good hard road each of these horses takes two tons as his ordinary load, and nothing will equal them in starting and shifting railway waggons. Less handsome specimens are purchased for road waggons. The mild temper of these horses adapts them admirably for large teams, where a long waiting pull is required, or to guide good-temperedly to the voice or whip, without rushing into the collar, as hotter tempered horses are so prone to do. Three of these brood mares can take a double-furrow plough even through heavy stiff land, and they are taught more easily than any other horses to go gently, and stop at roots in wood land, or amongst other obstacles.

The largest of these horses will girth eight feet, and they have altogether a roomy heavy body, on very strong, but not long legs. Their thighs should be very muscular, and their hocks deep, as in starting heavy loads the hind legs are tried more severely than the fore ones. Many persons like to see very large shank bones, and a quantity of hair on their legs, but neither are of any use further than that they often accompany a strong frame and good muscular development. The hair will often gather dirt and add weight where it is lifted at a great mechanical disadvantage, so that all such hair, as well as any unnecessary size of shank bone, only tends to tire the horse by taxing his muscles for no useful purpose. It has been calculated that a power equal to four hundred pounds has to be exerted at the loins of the horse to lift one pound weight at the foot; so that an unnecessary pound there is a matter of no small consideration (43).

The smallest shank bone of any horse is almost invariably strong enough for any work he has to do, and, other things being equal, a horse with a light shank bone never tires so soon as a horse with a heavy one. Strong, large sinews at the back of the shank bone are, on the contrary, of great consequence, giving a deep flat (not a round) appearance to both fore and hind legs. This is a severely tried point with every hard-worked horse, and one at which they often fail. Even here, quality is of more value than quantity, though the cart horse should have both.

The hips should be very wide and the loins muscular, without which no horse can be strong; but, the back of no harness horse should be roached.

The best of these horses have large, heavy, though good-tempered heads. The light head of a Thoroughbred should not be sought for in any cart horse, as it is quite incompatible with the mild, placid temper that is one of his most indispensible qualifications.

14.—Modern cart horses are less upright in the shoulder than the cart horses used to be, and are more frequently called on for a faster pace; but we have always found that the cart horse with an upright shoulder, and whose fore legs consequently stand somewhat under him, will draw a heavy load with more ease to himself, and stand more of it, than a horse with a shoulder sloping much back. The heaviest shire horse should be able to walk at a good pace, but the brisk walk should be the fastest pace required from him. Where much trotting is demanded, as well as heavy pulling, a lighter draft horse should be selected.

15.—As a sire, the Shire Horse betrays his varied and uncertain pedigree, as he does not transmit his qualities with the certainty of the Thoroughbred, or even of the Clydesdale.

If long-continued in his present form, the characteristics of the race will become more fixed, and for a combination of moderate, useful activity, with great power, docility, and constitution, the Shire Horse of the present day has never been equalled.

THE CLYDESDALE HORSE.

16.—The Clydesdale horse, like the men who have cultivated him, is not without his faults, but his merits have been sufficient to take him wherever a Scotchman goes, and that must be a poor country indeed, if such a country there be, where there are no Scotchmen and no Clydesdales. As guiding whips are superseded by reins, and walking drivers are displaced by seated pilots in the streets of London, the Black Lincolns disappear, and even the Shire Horses are giving place to the lighter, more active and hotter tempered Clydesdale. The horses that have long proved the best for hurrying through the short catching seasons of seed time and harvest in the climate of Scotland, are now chosen by the best judges of horseflesh for the trotting spring waggons that are started to keep pace with these railway times in our cities.

17.—Inferior to the Shire Horse in size, power, constitution, and placidity, he is better able to meet any pace required from him, is a smaller feeder, and is more easily matched in form and colour. It would be useless to repeat the traditions as to how this horse originated. By some we are told that he is a cross with the Flanders horse, by others with the Thoroughbred. He is probably both. No British breed of cart horses is likely to be entirely without Flanders blood, but the Clydesdale shows less of it than most others. Like all other good animals we know, his size and quality have no doubt been obtained by judicious crosses, and the desired characteristics fixed by long, careful selection of the fittest and best for breeding purposes. It is evident that he has been subject to less recent crosses than the Shire Horse, as he exhibits less variation of stamp, form, and character ; is everywhere known by his true, peculiar Clydesdale head, and he transmits his qualities with considerable certainty. It is this fixed character, even more than the prejudices of his countrymen in his favour, that has caused him to be so much sought for by our colonists. We once heard an Englishman say to a Scotchman, who was about to remit £500 to the old country for a Clydesdale Horse, "Why don't you send to England and get something fit to put into the shafts of a waggon, or to take a load through a river?" "Weel," said the Scotchman, "I might get a very fine horse, I might get an elephant, or I might get a camel, but I always like to know what I am going to get for my money."

18.—The Clydesdale is generally brown or bay, but sometimes black. Stephen's book of the farm is perhaps responsible for the extent to which white legs and faces have lately been tolerated. They are no doubt often found on exceedingly good horses, but they do not make them good, whilst they greatly spoil the appearance of any horse, and thereby lessen his market value. Hair on the legs has been absurdly cultivated, and does not harmonize with the quality and action of the animal. The most general fault of the Clydesdale's form is, not being deep enough in the barrel for a cart horse, and too long in the legs. Shortness of body has been much aimed at by the breeders, and is too often accompanied with a tucked up back rib, better suited for a race horse. No horse is more easily broken to his work, and in the hands of a Scotch ploughman he usually takes well to the collar. With good treatment the temper is good, but it is not easy or placid, and under noisy, blustering, passionate drivers, the horse suffers much, and tears himself to pieces.

19.—Next to the Thoroughbred, the Clydesdale can claim to have been well sought wherever the English language is spoken. The great English firm of carriers, Pickford and Co., are said to engage the exclusive services of a horse dealer in Scotland to purchase these horses wherever he can. Agents are often sent from the South of England to purchase Clydesdale stallions for the use of particular districts. In Canada the same sire has everywhere left his mark. In the United States the now fashionable Percheron is making a change, but still the Clydesdale head is often seen even on the Grey trotters. In Australia he continues to gain ground, whilst in New Zealand he is more exclusively used, is bred with as much care, is about as numerous, and averages a higher standard than in Scotland itself.

20.—In no part of the world have we seen the capabilities of this horse tested as they now are in some parts of the antipodes of his own country.

On a large farm, on which twelve thousand acres are cultivated, in the South of New Zealand, we have seen these horses at work in teams of six, drawing a treble furrow plough, and turning over five acres of good wheat land six inches deep, in eight hours. The lands were more than a mile long, and the pace so fast, that men could not be got to walk behind the horses. This was met by a simple contrivance of a little one-wheeled carriage, fixed behind the plough, in such a position that a man could ride within reach of his steering handle. The teams started at 8 a.m., and left the field at 5 p.m., getting a feed from nosebags, and water from buckets, between twelve and one. No whips are used or carried; the slowest horses are put behind where they may be touched with the reins, but that is rarely necessary, and there are far more complaints of the horses being too fast than too slow. Each horse in the winter gets 18 lbs. oats, and 14 lbs. of cut straw a day, with a pick of rough grass on Sundays, or any convenient opportunity. First-class oats on the farm are only worth about one shilling and fourpence a bushel. During the coldest and wettest months of winter the horses were worked within reach of a stable, but during the greater part of the year they are turned out in covers made of canvas lined with felt, in which they do quite as well if not better.

21.—The picked men, who each take charge of six lively high conditioned horses, and complete their five acres a day, are paid thirty shillings a week with board and lodging. Their lodging in wooden bunks is of a rough description, and there is little variety in their bill of fare. Bread, meat, potatoes, and "duff," with that colonial beverage, the abominable boiled tea, are supplied in great profusion, but green vegetables, though easily grown on such land, are neither provided nor demanded.

22.—At harvest time these men and horses are transferred to the reapers and binders, the men getting 10s. a day for about eleven hours work, and the horses working three at a time in two-hour stages through the day-light, and occasionally all through a moonlight night.

Extra hands are of course employed to feed and change the horses. No horse could be better adapted than the Clydesdale for such work as this, and we feel thankful that it is no longer done by overworked women and children, such as we used to see from daylight to dark in the English harvest fields.

THE SUFFOLK PUNCH

23.—Was once remarkable for his low stout build, the loins being higher than the withers, the colour chestnut, the legs free of long hair, the temper mild and docile, with a readiness to hang on to a dead pull again and again. He was seldom more than fifteen hands high, often less. There was nothing very showy or handsome about him, and his clean legs and feet were supposed to be unequal to London stones, although those who knew him best said that they were equal to anything, even to carrying a heavy weight ten miles an hour.

Although most useful for all ordinary purposes in his own country, he was never the horse to command a high price for city work, and this led to his being crossed and altered to a higher, more stylish, but hardly more useful horse. He is still chestnut, has still hair on his legs, is still a good useful horse, but is no longer all that used to be known as a Suffolk Punch, and would no longer surpass the Shire Horse at a pulling match. There is still a prejudice against him for London stones, and compared to other breeds he has made little way out of his own county. His homely virtues have not attracted the attention they deserve.

THE PERCHERON.

24.—Has been described as a "grey trotting cart horse." He originated in France during the present century, and has of late made some way in England, and more in America. He is a cross between the Flanders mare and the lighter horses, with a good deal of the Thoroughbred in them. He has been bred to a tolerably fixed character, and is everywhere admitted to be an active, useful horse. He has plenty of weight, good lungs, and a good command of his clean, light flat legs. The way he has lately made amongst that combination of all civilized nations in the United States, amongst the "cutest" and least conservative of civilized men, leaves no doubt of his valuable qualities.

THE THOROUGHBRED.

25.—Between the cart horses described above and the Thoroughbred horse, the varieties are innumerable. Whatever is wanted may be bred by selecting more or less weight for drawing loads, more or less blood for going fast. Weight can only be drawn by weight, speed in an animal can only be attained by avoiding all dispensible lumber. If you want to draw a load beyond your own powers, you have only to take a man of your own weight on your back and you will move with ease a weight that defied all your efforts before. On the other hand if you try to run a mile in the shortest possible time you will find that the weight of a coat or a boot will tell sadly against you, and that it is not your bones and sinews, your muscles, or even your nerves, but your heart and lungs that set the limit to the time in which you can do it. The Shire Horse, with his ponderous weight and patient temper stands at the head of all equine weight movers, but the English Thoroughbred Horse, with his light body, head, and legs, and magnificent heart and lungs, stands without a rival at the head of every work demanding speed and continuous exertion.

26.—Perhaps no animal ever stood so entirely on his own merits as the English Thoroughbred Horse. His performances have shown the fallacy of a thousand theories, have put down a thousand prejudices, and have commanded the practical admiration of those who would gladly have withheld it, and who had strong motives to pull him down from his proud eminence. The more experience a man gets with horses, the less he will calculate on their size, bone or muscle, and the more he will demand to know the pedigree of the horse upon which he is to rely for some extraordinary exertion. The novice may look to the form of the racer upon which he ventures his money, the experienced handicapper or bookmaker enquires for his parentage. The young bushman may expect an active cart horse to best carry him and his heavy baggage day after day through rivers and forests, or over mountains and plains, the old bush traveller knows by experience that he will only be well carried by something nearly thoroughbred.

27.—We have seen that we cannot accurately trace the origin of any horse, and we intend to avoid all uncertain speculations on the subject ; but we have good data by which we can discover the materials and processes that have combined during the last 300 years to form the fastest horse in the world ; and the inquiry is a very interesting as well as a very instructive one. We cannot say that the result is flattering to our national pride ; disinterested devotion, unselfish patriotism, as high and noble aims, do not figure much in the production; we must at the outset admit that he is rather the result of our savage wars, our gambling races, and our reckless and extravagant hunting fields.

28.—The soil and climate of England are favourable for horse breeding, and there is much evidence to prove that even at the time of the Roman invasion the light horses were good. The Normans brought over some of their best war horses with them, and as they took possession of the soil, each Norman was required to keep a certain numbers of war horses. It was in their power and it was their interest to keep the best, and they were no mean judges. In those days heavy cart horses did not exist in England. Ploughing and heavy draft work was all done by oxen. The slow Flemish draft horse was not introduced until the reign of William III., in 1689.

29.—In a really valuable book on horses, published in 1617, by Gervase Markham, and referred to with much respect by later English writers, the English horse is spoken of as superior to all others. He says:—

"I do daily find in mine experience that the virtue, goodness, boldness, and endurance of our true bred English horses is equal with any race of horses whatever. Some former writers, whether out of want of experience, or to flatter novelties, have concluded that the English horse is a great strong jade, deep ribbed, sid-bellied, with strong legges and good hoofes, yet fitter for the cart than either saddle or any working employment. How false this is all English horsemen knowe.

"The true English horse, him I mean that is bred under a good clime, on firme ground, in a pure temperature, is of tall stuture and large proportions; his head, though not so fine as either the Barbarie's or the Turke's, yet is lean, long, and well-fashioned; his crest is hie, only subject to thickness if he be stoned, but if he be gelded then it is firm and strong; his chyne is straight and broad, and all his limbs large, leane, flat, and excellently jointed. For their endurance, I have seen them suffer and execute as much and more than ever I noted of any foraine creation.

"I have heard it reported that at the massacre of Paris, Montgomerie, taking an English mare in the night, first swam over the Seine and after ran her so many leagues as I fear to nominate, lest mis-construction should tax me of too lavish a report.

"Again, for swiftness, what nation hath brought forth that horse which hath exceeded the English? When the best Barbaries that ever were in their prime, I saw them overrunne by a black hobbie at Salisbury; yet that hobbie was more overrunne by a horse called Valentine, which Valentine neither in hunting or running was ever equalled, yet was a plain-bred English horse, both by syre and dam. Againe for infinite labour and long endurance, which is to be desired in our hunting matches, I have not seen any horse to compare with the English. He is of tolerable shape, strong, valiant, and durable."

30.—Such was the stock on which the Thoroughbred Horse may be said to have been grafted. Barrett, who wrote a few years after Markham, thus refers to the first cross with Eastern blood:—

"Although the Spanish Genet, the Irish Hobby, and the Arabian Courser, are held both by Maister Blundeville and Maister Markham to be the chief for pacing and neat action, there is the bastard stallion begotten by one of them on our English mares, which doth exceed either of them in toughness."

31.—Both of these books, written in the reign of James I., display much vigour of thought and independence of expression, and bear internal evidence of being truthful. It is not so with books published fifty years later. In a very pretentious book on horsemanship, by Cavendish, who had been created Duke of Newcastle by Charless II., both text and plates are absurdly inaccurate. In such a book we of course read a great deal of the virtues of the English monarch, and nothing of the virtues of the English horse. In a book published at Rome, by an Italian, under the patronage of the Pope, twenty-two years later, the English horse is ignored altogether, although at the same time even the Catholic King James II. knew the English horse to be so superior to any other, that he sent over to England for hunters to use in France. So much must we allow for the effect of royal patronage and sectarian prejudices even in the history of a horse.

32.—The satisfactory result of the first cross with Eastern blood, soon led to a great deal of attention being given to the importation of the best Eastern horses. Cromwell for war, and Charles II. for sport, both sent emissaries to the East in search of good horses. The Barb seems to have been chiefly used, though often under the name of the Turk or the Arabian. There is much confusion in the manner in which names were applied at this period, not in accordance with the strain of the horses used, but after the name of the country from which they happen to have been imported. Some twenty Oriental horses are known to have been used in the formation of the Thoroughbred between 1620 to 1750, but the pedigree of no English horse can be reliably traced back farther than to Place's White Turk about 1655. Place was Cromwell's stud master, and like all Cromwell's officers, no doubt understood his business. His horse, the White Turk, is known to have been the sire of several horses and mares to which some of our best stock is now traced. The right quantity of Oriental blood seems to have been infused into the English stock, and a new breed of a fixed character formed in little more than one hundred years. No further infusion of Eastern blood has succeeded. All late experiments in that direction have entirely failed, and the superior speed and staying power of the English Thoroughbred Horse is now so undoubted, that no cross whatever can be adopted without deterioration.

33.—Flying Childers and Eclipse, the one foaled 1715, the other in 1764, are popularly believed to have been the fastest horses that ever existed. They appear to have been the fastest horses of their own day, but the records of their performances against time do not come down to us with the same, or with equal guarantees of accuracy, as those which have been adopted in the records of public events in the present century. In 1771, Richard Berenger, in his "History and Art of Horsemanship," says, "The finer and better sort of the more modern English horses are descended from Arabians and Barbs, and frequently resemble their sires in appearances, but differ from them considerably in size and mould, being more furnished, stout, and lusty: in general they are strong, nimble, and of good courage capable of enduring excessive fatigue, and both in perseverance and speed surpass all the horses in the world."

34.—For nearly two hundred years after the English race horse was admitted to be the fastest horse in the world for the short distances run on an English race course, doubts were from time to time raised in various quarters as to whether he would prove the fastest in a very long distance. The most cruel distances were often proposed but seldom accepted, but whenever they have been accepted the distance has only exhibited the superiority of the Thoroughbred in a stronger light. A most disgusting race came off in 1825, between two Cossack horses and two English horses, for no less a distance than forty-seven miles. The English horses ran away to begin with more than a mile, off the course, and one of them was lamed. Besides this two miles extra, the unlamed horse (Sharper), did the distance in two hours and forty-eight minutes, carrying towards last double the weight of his best opponent, and beating him by eight minutes. A much more decisive and less barbarous race came off in Egypt some 30 or 40 years later, between an Arab horse and an English covert hack, known as Fair Nell, but not in the Stud Book. The challenge was given by Haleem Pacha, who inherited from his father, Abbas Pacha, what was supposed to be the best stud of Arabs in the world. His challenge was accepted by some Cairo merchants, who sent to England and purchased Fair Nell for the purpose. The distance was fixed at eight miles, over a rough stony course, and the mare had to run a fortnight after her passage from England to Egypt, against the best horse the Pacha could select from his large stud of Arabs.

35.—Fair Nell ran the distance in eighteen and a half minutes, beating her opponent by a mile, and pulling up quite fresh. Thus meeting the Arabs on their own ground and at their own distance, Fair Nell seems to have settled the question of long distances even more decisively than short ones were settled before. Although not in the Stud Book, Fair Nell was evidently thoroughbred, and a fine specimen of her race. Besides her speed and staying power, she was a weight carrier, stood fifteen hands one and a half inches high, with as good a shoulder and foreleg as a riding horse could possibly have.'

It was not until 1791 that the first English Stud Book was published.

36.—In America, the same blood has been used, in addition to many other useful purposes, to gratify the natural taste for trotting matches. The descendants of Messenger, the son of Mambrino, imported in 1786, have achieved most success in this line. The horses are often trotted against time, the great ambition being to get a horse to trot twenty miles within an hour. This sounds a cruel distance for such a pace, but we lost many of our prejudices against it when we first saw it done on an American course.

It may sound paradoxical, but it is nevertheless pretty safe to conclude that a race is never a cruel one if it is really a fast one. Whenever real distress begins the pace must slacken, and the horse can only make good time when in a condition to do it without any distress. Thus in that barbarous race between Sharper and the Cossack, the pace was slow, three minutes thirty-four and a half seconds being taken for each mile ; both horses having been urged on long after they were distressed and exhausted. But in the comparatively humane race between Fair Nell and the Arab the pace was fast, each mile being performed in two minutes eighteen and three quarter seconds, thus proving that the last mile was done with unexhausted energy.

37.—We will briefly describe the race against time, which made us feel more happy about American trotting matches. We were waiting in San Francisco for a steamer towards the end of 1871, when we saw in the morning papers that a large wager had been laid that a certain mare, unknown to fame, would trot that day twenty miles within the hour. We were told by the local sages that she was not at all likely to succeed ; that she was now sixteen years old, and that she had been sold in her prime for forty dollars. Reasons were also given for believing that the wager was fictitious, and only got up to draw some greenhorns into a trap.

On arriving at the course we tried to be as knowing as the cute men who surrounded us, and soon thought that we saw a good deal to confirm this suspicious view of the event about to come off.

But nothing takes the very knowing ones in on any race course like a bit of simple straightforward honesty. The most prominent feature on the ground was a man in an auctioneer's pulpit, gibbering away about something, and who, we were told, was getting bids or deposits against the mare, or against time. With a little assistance from an interpreter, we understood that time was the favourite, and that the mare was little trusted.

38.—The course was a half mile circle, of hard binding sand, kept just wet enough to keep down dust, and on which no visible impression was made by the foot or wheels. The sulky was two light high wheels, with a pair of very light shafts, and just seat enough built on them to hold one man. No springs were wanted on such a road.

The mare was a common-looking little chestnut, under fifteen hands, and a close set, rather than a reachy-looking animal ; and yet there was much about her that reminded us of the description which Frank Forester's correspondent gives of old Messenger himself. There were especially the double-sized nostrils and wind pipe, the low wither, yet deep chest, with strong loins and hind quarters.

She seemed under no excitement, yet extraordinary provisions were being made to hold her back. Another sulky, with a light-headed, long-legged horse, was placed in front of her ; and as her driver took his seat he wound a rein round each hand as if preparing to be drawn entirely by the mare's mouth. The horse before her started off at a gallop, the mare soon did the same, and much time was lost in pulling her into a trot. This was repeated again and again, and, as the first mile had occupied nearly four minutes, a shout of derisive laughter ran through the crowd, as if the whole thing had been settled against the mare. It was, however, soon understood that the race was not yet begun, and that time would not be cried until the mare had settled down to her work. This was not done for another mile or two, and when time was cried she was boring her head almost through the frail sulky that was being drawn at a gallop before her, whilst each hind leg seemed to reach alternately almost to the back of the sulky which she was drawing entirely by the reins. Still, each mile took a few seconds more than three minutes. and time was still the favourite at the noisy auction mart. This continued until the leading, or rather the restraining sulky, with its exhausted horse, turned out of the course and the mare was left alone.

Now, for the first time, the sight was a pretty one, the galloping panting horse no longer obstructed the view, and the mare's hind and fore legs were a study as they came past. It was evident that it was the strong hind quarters that were dashing those hind legs so far back, and that the short fore legs had only to plant themselves well out of the way; whilst the lungs were supplying all that was wanted, as quietly as they had done the first mile.

39.—She now began to do each mile three or four seconds within the time, so that time went down and the mare went up at the noisy pulpit. When seventeen miles had been accomplished she had several seconds in hand, and the owner cried to the driver "Don't hurry, you have plenty of time." To which he replied, "I can't hold her any harder, sir."

40.—The race was won with something to spare, the mare showing no symptom of distress. As she was led through the crowd she snatched a handful of hay that was offered her by a bystander, and ate it as if her lungs had nothing particular to do. It must be evident that had the mare been in the slightest degree distressed she could not have continued to improve her pace as she went on.

41.—On the racecourse the Thoroughbred has been treated chiefly as a gambling machine, and by racing men has been bred with the mere object of getting an animal that could gallop over a mile or two in the least possible time. So long as he could do this his general utility, his size, his power, his temper, his soundness, his beauty, his safety, were all matters of indifference. A horse may excel in all these points and yet not be worth one hundred pounds, whereas if he can run a mile in one second less than any other horse, he is worth ten thousand pounds as a winner of cups and bets.

42.—At first sight these facts may appear to prove that the race course has done and will do nothing to improve or sustain a superior breed of horses, and yet it is not so. Fortunately the one thing required by the gamblers cannot be obtained alone. There must be docility enough to make the horse controllable under the utmost excitement ; there must be toughness enough to stand the racket of the most trying pace, and the wear and tear of severe training ; there must be digestive organs good enough to supply the best possible blood ; there must be animal brain and moter nerves of high quality ; and above all there must be heart and lungs good enough to completely oxygenize a large supply of blood in the least possible time. Now all these are qualities that add to the value of any horse, and many of them are qualities that the eye of the best judge could never estimate with the certainty with which they are proved on the racecourse. Men could judge something of the bones, sinews, muscles, and form of the horse, and in so doing often expected to select with certainty the best, but experience proved that they could not do so. The brain, the nerves, the heart, and the lungs were always out of sight, and the best judges were always at fault. They condemned the Godolphin Arabian to a shop keepers cart, and refused to use him as a sire until ten years old, when Lath, his then only son by a good mare, proved on the race course that his father had latent qualities which fitted him, as they had destined him to be the progenitor of the most successful animals that have since figured in the British Stud Book.

Eclipse was never trained until five years old, and qualities which enabled him to enrich more than one owner, and to distance all competitors, were only discovered by trial and competition.

43.—There is one great defect which racing men can tolerate in the horse, and that is low, unsafe action. They even like it, because it enables the horse to get over a distance with less exertion. This is a defect which makes many a race horse of little value for any other purpose. Another misfortune is that the mere racing or gambling machine need not be large. A small horse is often as fast as a large one; indeed a very large strong horse, however well bred, is rarely fast enough for the purpose: there must be quality, but there need not be quantity. Any extra weight about the feet and legs which are moved at a great mechanical disadvantage (13) is fatal to the pace that alone can win in a fast race. A mere weed that is unsafe to ride at a walk may be a better gambling machine than a horse fit to carry a duke weighing sixteen stone over a five feet fence. Here fortunately another human weakness has helped to save the race-horse from hopeless degeneration. The breeder is never sure that any horse he may breed will be fast enough to race successfully: six out of seven that are bred for the purpose are not so; consequently he looks to the hunting field as a possible destination for the horse he breeds, and the huntsman will have nothing to do with him unless his action is safe and his fore legs strong. Thus a potent motive is always at work to induce the breeder of Thoroughbreds to select horses fit to carry a heavy weight in the hunting field, and if fit for that they are fit for any fast work.

44.—But much as the race course and the hunting field have done to keep up the quality of the British Thoroughbred Horse, he has never been left entirely to their unaided influence. During the two and a half centuries that he may be said to have existed, we have never been without men of means and patriotism, and judgment, whose love of the horse for his own sake has made them something far more than mere race-horse breeders.

Not a few lords of the British soil have made the improvment of the horse the chief business of their lives, the one channel through which they have sought distinction, and whilst such men have tried hard to win races, they have tried to do so with really good horses. The late Earl of Glasgow made it a business rather than a hobby, and often failed on the turf because his horses were too strong and useful. The valuable stud he collected has done much since his death to improve the size, power, beauty, and usefulness of the light horses of the world. Such studs supply the material by which all the valuable quality and pace of the

Thoroughbred is obtained, without getting too small for the hunting field, the cavalry, the carriage, or the traveller's horse.

45.—The fine strong, bony, but low-bred animals that could look or hop over any fence in cold blood, and carry any weight on parade, are no longer used by experienced ambitious hunters. They have found that it is not bone and muscle, but heart and lungs that must carry them through a long burst, and that even an Arab pony, whose heart and lungs can keep up with his little legs at any pace, is a safer animal to ride over a fence at the end of half an hour's gallop, than the biggest horse whose nerves and muscles can no longer act for want of oxygen.

The coach or carriage driver has found the same. The fine Cleveland bays that pranced so nobly and started the coach so easily are staggering and trembling with heaving flanks when the cruel stage is half over, whilst the little Thoroughbreds are ready to run away at the end of it.

46.—On the battle field, in pursuit or retreat, through the cold wild wastes of Canada, or over the snows of the Rocky Mountains, in the waterless deserts of Australia, or through the floods and over the mountains of New Zealand, the Thoroughbred carries his rider as no other animal can do, enduring hunger, cold, heat, or thirst, despising fatigue and pain, getting lighter and weaker every day, but still responding to every call, and often saving the life of an ungrateful and exacting rider at the expense of his own.

PONIES.

47.—The term everywhere means a small horse, but the limit varies in every locality, so that pony may mean a horse under eleven, or under fifteen hands high. The old fashioned, hardy, bad shouldered ponies of the New Forest, Exmoor, or Wales, have all been crossed with small Thoroughbreds, until any distinctive character about them is lost. They are all active enduring animals, capable of carrying light weights to a great distance, but they are no longer fit to take the place of donkeys, or to carry without bridles panniers loaded with children.

48.—The Shetland pony alone retains its character. The peat bogs of Scotland do not suit even a cross with the Thoroughbred, so that the little rough shaggy animals may still be found in all their interesting docility, littleness, and ugliness. The most active demand for them, and probably the most useful occupation they ever had, arose about forty years ago, when the legislature mercifully decreed that women and children should no longer be used as beasts of burden on underground tramways. Since then these little cart horses have worked in places too low for any bigger animal, and some of them have drawn trucks twenty miles a day for sixteen years without ever seeing daylight, or breathing the fresh air with which they were supplied so abundantly in their infancy. Their little legs and short backs sometimes get broken, but their wonderful eyes and lungs seem to stand as those of few other animals would do.

CHAPTER III.

STABLING, CLOTHING, AND CLEANING.

49.—Though adapted only for a temperate climate, the horse has a constitution that enables him to endure a great deal of cold or heat. When habitually exposed to much cold and wet nature will provide him a good coat of thatch, but such an immovable appendage is not convenient for hard work, and especially disqualifies him for the severe though short exertion that the light horse is so often required to perform. He is better qualified for any kind of work by being sheltered from severe cold and rain, but this should be done without excluding him too much from fresh air and light, and without long depriving him of the exercise his active limbs demand.

50.—We have no lessons to give in architecture : that is not our fort. Horses, like children, thrive quite as well in a mud house as in a marble mansion, so long as they get the sun and pure air free to all, the water as it comes from the clouds, and food adapted to the machinery that must appropriate it. When called on to build a residence, either for themselves or their horses, most wealthy men like to put up something original, or to carry out some particular crotchet of their own. It is well that there are men with such tastes, nor is superfluous wealth often better spent. But those who have no money to spare would always be more safe to look for some building already erected, containing all the convenience needed, and to copy it exactly. However simple, or however elaborate the structure desired, something can be found as a pattern, and in nine cases out of ten, the result will be more satisfactory and economical than paying for any experiments of your own or of your architect.

51.—The situation of the stable should be dry and sunny, and openings for air and light be on the sunny side of the building. The walls may be any non-conducting material that is most easily obtained in the locality. Height is always advantageous, and there should be some opening high up that should never be closed. If the horses are to be kept warm it must be done with clothing or with fire, and not with bad air. No roof is so comfortable as thatch, no floor so good as clay.

52.—The clay must be kept well above the surrounding ground, and should be nearly a foot thick, putting it rather higher in those parts where there will be most wear and pressure. Ram it hard, and keep it quite level and free from holes. A horse is greatly injured by the common practice of standing with his fore legs higher than the hind ones, or with either of them in holes. The clay may be loosened with a pick and re-levelled whenever it wears in holes. A small part of it will daily and advantageously find its way to the manure heap, and when any part gets thin and low, or emits any smell, it may be picked up and removed for manure, putting a new bed of clay in its place. This will be found far better than any kind of stone floor, as besides being uninjurious to the horses feet, clay is the best of deodorisers, and keeps the air of a stable more fit to meet the eyes or lungs. Any kind of smooth stones are dangerous, and too slippery for the horse to rise on when laid down. Nothing could be much worse than the rough pavement made with small stones put close together, so commonly used. It is impossible to clean it or to prevent it smelling strongly, as stones do not deodorise, whilst it is distressing to a horse's feet and destructive to his shoes. Where appearances and great neatness are principal considerations a clay floor with all its sanitary advantages will hardly be accepted. In that case concrete will be the best material, if made rough enough for the horse to get a good foot hold on it. It will not deodorise, but it will not absorb, and can be washed perfectly clean. Contractors are fond of putting it down in layers, with the largest proportion of cement at the top. This does not answer at all, the whole four inches of concrete should be put down at once, and of the same strength throughout. A foundation should be laid of stones, or flints, or brickbats, well rammed, so as not to sink afterwards. The concrete is then prepared by mixing one part Portland cement with five parts (by measure) small pebbles, about the size of a blackbird's egg, mixed with a little coarse grit, but entirely free from earth or vegetable mould, which would destroy all its strength. When the five parts of this gravel have been well mixed with the one part Portland cement, on a floor where it can pick up no earth, it must be carefully wetted so as not to wash the cement out of it, and quickly laid in its place. Wet no more at a time than can be put down in ten minutes, and keep it moving until laid in its place, as if it sets at all and is broken up again its great strength is lost. No horse should be admitted on it for a week, and would be better kept off for a month.

53.—It is very desirable that each horse should have a box to himself, even though it should be only ten feet square, as tying up in one fixed position, even for one whole night, is injurious and unnatural to a horse. Failing this his stall should be six feet wide, and the sides free from any projections liable to injure him when lying down. The plan sometimes adopted in cart stables, of tying all the horses up to a manger without any partitions between them is dangerous, and prevents their proper rest. However quiet and reconciled to each other the horses may be they will be liable to tread on each other's feet, and we have known a most valuable horse killed in that way. The foot mortifying from a wound with the turned down heel of a shoe.

CLOTHING.

54.—The horse for fast work should be clothed in the winter ; for very fast work he should be clothed all the year round. It will make him look better, do his work better, and cost less to feed. When it is required that he should do his work in good style, and when he will be thoroughly and regularly cared for, his natural winter coat may be clipped off at the beginning of winter, and its place supplied with warm movable clothing. No experienced labourer attempts to work hard in the same coat that he wears when at rest, and it is equally advantageous to the horse to have his great coat taken off for work, and put on when his work is done. But as he does not do it for himself there must be no neglect on the part of his attendant. A horse so treated is most liable to suffer by being kept waiting for "my lady" half an hour after his cloth has been taken off, and before he has had an opportunity to warm himself by exercise, as even when the attempt is made he cannot be well covered over with the harness on. In such a case the coachman should be instructed to drive about until wanted, or at least to give his horses one brisk trot before they are called on to stand, even though it should splash the carriage a little.

Do what you will, horses that have been clipped in winter will never carry such good spring coats as those that have not been clipped. The horse for slow work that frequently has to stand about in all weathers without much attention to his clothing, had better be allowed to keep on his natural coat, but the winter coat of any horse may be much shortened by clothing him early in autumn, and feeding and cleaning him very carefully though liberally.

55.—In any moderate weather, perhaps in any weather not wet, the horse for slow work does better turned out after being well fed, with a covering of felt inside and canvas outside (20), fastened so that he cannot rub, roll, or get it blown off. He never takes cold when thus allowed to move his limbs and shift his position. He breathes the purest air, and will keep in better health than he will do tied up in a stable. He will take no harm even in wet weather, but when raining or snowing he had better be under a shed if one is available, but not tied up in a cold draft. Warm clothing is in every way better than warm housing, as it is always compatible with free motion and pure air. Picking some rough green food, though it should be only a furze bush, to mix with his dry hay and corn, will save his wind and promote his health.

CLEANING.

56.—Long before the average Englishman, or the average physician, had discovered how much advantage was to be gained by a little daily attention to the cleanliness of his own cuticle, every trainer, and every observant coachman, knew how much the health, beauty, and power of the horse could be increased by the daily vigorous friction of his skin. There is no difference of opinion amongst trainers on this subject. Indeed the skin is the principal index by which the chance of any well bred horse to win the Derby or other great race is estimated. No matter how good the horse may be, however well he may have been bred, fed, clothed, or exercised, if his skin has been neglected, it is perfectly understood that he has no chance of winning.

57.—Animal life and vigour are only maintained by a constant pulling down of old material and building up of new. The pulling down is just as essential and important as the building up, and is done by more delicate machinery, and therefore more liable to obstruction. With the ordinary well fed man or horse, it is hardly too much to say that if you take care of the pulling down, the building will take care of itself. If the skin is not rapidly carrying away the old material, it is no use for the digestive organs to be rapidly preparing new, and they will not do it. To force nutritious food upon an animal under that condition is like pouring more water into a flooded flower pot, when there is no provision for the stagnant water to escape. When the utmost health and vigour are demanded, every one of the millions of minute pores that open out of the skin must be kept in good working order, and helped to get rid of its burden as easily and expeditiously as possible. If we could take off the horse's hair and put it on again at pleasure, as we do our own clothes, we could treat him as we do ourselves, and frequently wash his skin, but as we cannot remove his clothes, the cleaning of his skin pores and the removal of all that they bring to the surface must principally be done with a brush. Not with an iron scratching machine that would wound and close the extremely minute and delicate pores, but with a vigourously applied hair brush, that will keep them all clean, open, and at full work. We are writing just now of well bred and well groomed horses, whose skin and its covering are totally different things to that of the cart horse or Shetland pony, unclothed, ungroomed, and lying out in cold weather.

58.—In training and hunting stables a great deal of time and hard work are well spent in brushing the horses skin. In a gentleman's stable where moderately high condition and appearance are demanded, a strong man should work at least an hour a day on each horse, as soon as possible after the horses come in from their work or exercise. A rather stiff hair brush may generally be used, but there is a very great difference in the sensitiveness of different horses, and the brush should be carefully adapted to them. A tender skinned sensitive horse is often made vicious for want of attention to this. Most horses too have some part of the legs or body on which they are really ticklish, and every part must be cleaned.

Here, as in everything else, there must be no fighting with your horse. Don't jump to the absurd conclusion that the horse is neither sensitive nor ticklish, but only wants an excuse to hurt someone. Many horses playfully threaten to kick or bite whilst being cleaned, that never do either, and a good tempered groom will soon find that out, and feel no alarm or concern about it. But generally the threatening is the horse's only way to tell the groom that he is ticklish, or that the brush is too hard for his tender skin.

59.—If a softer brush makes no difference, and the horse evidently means biting, get a bridle fitted with a very large smooth wooden bit, too large for him to shut his mouth with it, and put it on him before you begin to clean him. This will not only make it impossible for him to bite you, but it will divert his attention, and probably keep him employed in attempts to expel the awkward but harmless mouthful. If no such bit is at hand, any short bit of stick the right size may be tied into his mouth by the halter. If he evidently means kicking, clean all his fore quarters first, and leave any part that he objects to for the last. Then, if you have an assistant, get him to hold up one of the horse's fore legs, whilst you gently and steadily rub the ticklish part in such a way as to convince him that he will not be hurt. Be quite sure that your brush is not too hard, and that you are not really hurting him. If no assistant can be had, put knee caps on the horse, and put plenty of litter under him; untie him from the manger, and strap up one of his fore legs (353). Then go carefully to work, he can't hurt you, and you must take care not to make him hurt himself. Do not keep one leg strapped up more than ten minutes, but put it down and strap the other if necessary. Do nothing in a hurry or in a temper, and when his leg is up remember that the object is not to show the horse you can hurt him, but that you will not hurt him. If the horse is young and so fresh and restive as to be likely to hurt himself with his leg strapped up, which very few horses will do, he must be taken into a deeply littered or tanned loose box or yard, or into a ploughed field. There his leg may be strapped up with safety to himself, and he will soon be tired of any plunging. When thus subdued, give the ticklish part a great deal of gentle handling so as to get him accustomed to it, and to give him confidence in your treatment. Change the strapped leg again and again if necessary. If you cannot thus entirely cure him of the liability to kick, he will soon get so accustomed to have his leg strapped up that there will be no danger of his hurting himself about it. The horse which merely shows you the way he could kick, by lifting up his leg and putting it slowly back, is only a good tempered horse warning you off. The really vicious dangerous horse kicks suddenly without warning, and his kicking leg moves at a pace too rapid for the eye to follow.

60.—Whenever you approach the hind quarters of a kicking or suspected horse, make a point of observing which of his hind legs is carrying the principal weight of the body, and approach him on that side, as before he can kick you he must change the weight unto the other leg, which will give you plenty of notice. Such a horse will almost invariably take the weight off the leg you are cleaning, it is therefore best to clean the leg farthest from you, standing close to the front side of the other. The foot is the long end of a lever, which gains velocity by distance, so that a kick at the starting point is nothing very serious ; at four or five feet distance the velocity is very great, and the blow very dangerous.

61.—Either the kick or the bite of a vicious horse is very severe, and we must not be understood as advising any one to despise either. A cool headed man with a good eye, who has learned to read the ears and motions of a horse, will see how to keep out of real danger, and such men are hardly ever hurt. A fussy, timid, bad tempered man has no business at such work. It is no doubt unwise for anyone to keep a really vicious horse, but some men enjoy a daily triumph over them, or the real pleasure of removing their bad habits. Only such men should handle vicious horses, just as street Arabs are only successfully taken in hand by ladies of a similar taste.

62.—The cart horse is a less sensitive and more patient animal, whose thicker skin is deeply covered with hair. They are seldom troublesome to clean, and the cleansing they get is generally of a superficial character. The long continuous exercise they take in the open air, is more favourable to the expulsion of waste, both by the skin and the lungs, whilst such very high condition is not demanded by an animal whose lungs are less severely tried, and whose daily exertions are spread over eight or ten hours.

63.—A long neglected skin will be got into good order most quickly by a few good washings. For this purpose the horse should be made very hot with exercise—the hotter the better—then quickly and thoroughly washed and scrubbed with warm water, scraping the water well out of his hair with a piece of hoop iron, and riding or moving him about in the open air until quite dry. The fear of taking cold after the use of warm water on either horses or men is only one of the bug-bears that are kept up to prevent the use of water. Neither horse nor man will readily take cold on a really clean skin, whether made so by warm or cold water, and the child just out of its daily warm bath may roll in snow with far more safety than the child who has had no bath at all. Very warm water will injure the appearance of any hair for some hours or days afterwards.

64.—The practice which nature has taught the horse to adopt to clean his own skin has probably many advantages beyond those which we can see, and is one that should not be entirely ignored by those whose aim it is to keep the horse in the highest possible state of health. However well a horse may be cleaned he likes to take an occasional rub on his own account, and the deodorizing earth that he works into his skin has unquestionably some advantageous effect. With the gentleman's groom with whom appearance is usually the first object, such efforts of the horse for his own welfare are never likely to receive much encouragement ; but with the trainer, who has a higher object to attain, and who, if observant and reflective, has learned to suspect something advantageous to the horse in everything that nature dictates to him, rolling will not be forbidden, but special facilities offered to make it effective.

In fine weather when the horse comes in warm from exercise his cloths may be taken off, and putting a long line on his neck lead him at once to a piece of ploughed ground or loose earth, and let him roll on it as long as he will.

The sweet earth he will work into his skin will carry out some impurities with it, and although it may not improve the appearance of the groom's brushes or cloths, it will improve their smell, and better fit them for their main object.

CHAPTER IV.

FOOD.

65.—The natural food of the horse is grass: there is nothing else upon which he will grow so large, keep so healthy, or live so long. His alimentary canal can accommodate itself to the dry seedless stalks of winter, to the green foliage of spring, or to the nutritious seed pods of summer. On the stalks he keeps healthy, on the green foliage he grows or fattens, on the seed pods he attains his utmost power and vigour.

66.—From these facts we learn at once from the teaching of infallible nature upon what to feed him for any required purpose. Do we want him healthy and quiet but dull and spiritless, and capable of no great amount of work, we give him hay or even sweet straw. Do we want him fat, soft, and sleek, though liable to puff like a fat man or woman, at his work, we supply him with abundance of green grass. Do we want him full of life and spirits, capable of desperate exertions or of working steadily on for eight hours a day, we give him about the same proportion of seed or corn, with the woody fibre on which it grows, that nature gives him with ears of summer grass or grain that he crops, and it is most important that we should find out exactly what that proportion is, as it will show us at once the utmost limit of concentration for which nature has adapted his assimilating organs.

67.—Under the most luxurious provision that nature ever makes for him, that is when the grasses and cereals are full of matured seeds, he cannot procure those seeds for himself with less than from two to three times their bulk of chaff, hay, or straw, and accordingly we find that his alimentary canal is not adapted for anything of a more concentrated or less fibrous character than that mixture would constitute. Unmixed seed or corn always injures him, and injures him more or less just in proportion as it contains less or more of rough woody fibre in itself.

Thus coarse seeds such as prairie, kangaroo, Maori, cock's-foot, or rye grass seed, or oats, surrounded as they are with a rough fibrous husk, may with some difficulty be passed through his digestive organs ; but such seeds as wheat, which are surrounded with no fibrous husk, are absolutely poison to him, and if allowed or compelled to eat them, in an unmixed state, they will kill him with great pain.

68.—Inattention to these simple, plain, but most important teachings of nature, has led to much suffering to the horse, and much loss to his owner. The poor animal has often been killed with kindness by those who intended to be his best friends. How often have we seen a heavy feed of unmixed oats given to a horse in the morning, as a preparation for the longest or hardest day's work ever expected from him, and the same food put before him at every stage of the journey. It is true that it does not often kill him as unmixed wheat would do, but it makes him uncomfortable from the first, and the discomfort increases with every feed, until he refuses corn altogether, and suffers more through the day with the pain and weakness inseparable from indigestion and disordered bowels, than he would have done with twice the work on a mixture of food fitted for his stomach.

69.—Nor does the mischief always end with the day. There is a constant remarkable sympathy between the digestive organs of the horse and the extremely sensitive laminœ of his feet, so that inflammation will fly from the one to the other in the most sudden and unaccountable manner. Anything that is liable to inflame the bowels is thus liable to inflame the feet, and a great deal of the lameness we see in the horses of those who wish to treat them most kindly is the result, not of overwork, but of injudicious feeding. When a horse is constantly kept upon food as concentrated as he can bear, there is necessarily a tendency to inflammation and consequent lameness, but lameness is more certainly produced with sudden changes from bulky to concentrated food, and that on the day when his feet are to be most severely tried by concussion on a hard road. It would be safer to abuse his digestive organs one day and his feet another, than to abuse them both at the same time. We have had grass feeding horses that we could lame at any time, without any extra work, by simply giving them more corn and less chaff.

70.—Trainers for the race course or the hunting field are constantly sailing as near the wind as they can in this respect. Their horses must be well nourished, but the trainer wants the tubes by which nourishment must be conveyed to occupy as little room as possible, in order that more room may be left for the expansion and play of the lungs. Their horse's natural appetite craves for more bulk in his food ; he longs for grass, hay, or even straw, and it is often necessary to muzzle him, or to litter him with saw dust to prevent him from eating his bed. The more oats a horse can be got to eat the better his trainer is pleased, but no horse can live on oats alone, and some more bulky food must be allowed. We know of some successful modern trainers who allow their horses some succulent food, such as a little roots or grass, with great advantage, especially for very nervous horses. Bulky, succulent food is the surest relief for excessive nervousness in horses. But the trainer tries to find out how much hay or other woody fibre, or bulky food, is absolutely necessary to keep his horse in health, and in nine cases out of ten he errs on the side of too little and too dry. Only Thoroughbreds will stand this treatment, and a large proportion of them go lame or otherwise break down under it. None of them will stand it very long ; all get "stale," stiff, and prematurely old under it, and so permanently injurious is it to the constitution that the best mares that have been long trained will often not breed at all afterwards, and hardly any of them ever breed a winning foal, however good they may have been themselves.

71.—We say this with no want of respect for the opinions of trainers. They are a class of men whose views and practice we consider entitled to much consideration, as they often gain their knowledge with long patient experience, rather than by learning stereotyped theories by heart. But there has in all ages been a remarkable tendency, especially amongst legally qualified medical practitioners, to overlook the very simple but all important fact, that the food for each kind of animal must not only suit it chemically, but mechanically : or in other words that its bulk and its texture are often of far more importance than its chemical constituents.

72.—When the great French physiologist, Francois Magendie, found that the dog could not live on sugar, butter, oil, jellies, or fine flour, he at once jumped to the conclusion that it must be because these substances were deficient of some required chemical constituent, and decided that it was the want of nitrogen or azote in such food. That nonsense has been repeated up to the present day, and even the Encyclopædia Britanica gravely tells us that Magendie "discovered that food destitute of nitrogen is not nutritious." But some boy who did not know the meaning of nitrogen or azote, had the common sense to suspect that his dog would get on all right with the sugar or the butter if it was mixed with some substance that would carry it into and out of his bowels, and when he fed him on sweetened and buttered sawdust his dog became the admired and envied of all other dogs, though none of all these learned men quoted the boy as an authority on the subject.

Thousands of patients are annually killed and millions are made miserable by following their doctor's advice to take substances that contain a large proportion of nourishment instead of such natural food as will readily yield up what little nourishment it contains, and pleasantly pass the machinery for extracting it.

73.—For all ordinary purposes, however hard or fast a horse has to work, his maize, oats, or barley, should be mixed with an equal weight, or with twice their bulk of chaff (cut hay or straw). If beans, peas, or wheat are used more chaff must be mixed with them, because they contain less husk in themselves. If the work required is very light the corn should be reduced in proportion, or the horses may be fed entirely on hay and grass, or on hay and roots. A good deal of slow work may be done on good grass alone. In warm dry weather even fast work can be done well on it, and horses so fed are more likely to be quiet and reliable for occasional services where appearances are not a very formidable consideration.

No horse, however lightly worked, should be fed on hay alone, he should get either grass or roots with it, when the work is not hard enough to make corn desirable. No horse that is lightly worked should be highly fed on corn. It is a common foolish practice which causes many good horses to be discarded from a good place and condemned to a coach or cab. If for the sake of appearance high feed must be given, then there must be regular work enough to take off the surplus energy. The well fed and daily worked horse is at once the most efficient and trustworthy, but failing plenty of exercise there should be little or no corn. Most of the trouble that ladies and inexperienced persons get into with horses, is the effect of too much corn and too little or too irregular work. When Queen Victoria rode on horseback her horse was always thoroughly exercised by a lady on the morning of the same day she rode it. The exercise was given early enough to allow of the horse being well sweated and then dried and cleaned in time for her Majesty. Horses highly bred and fed, however naturally good and quiet, are always dangerous for a lady's use when allowed to stand idle. Indeed, under any circumstances standing long idle can only unfit a horse for any kind of work. The horse is adapted for something very like perpetual motion, and for foraging for himself, and not for standing for days together in a stable and feeding on corn.

74.—Whatever the feeding is to be let it be regular, and don't expect your horse to digest the most corn on the days that he does the most work, or to digest grass on one day and unmixed oats the next day. If he is to live on grass his tubes will keep in the right form and diameter to deal with it, but if he is to live on oats with but little hay they must alter wonderfully, and they cannot alter to meet such a change in a day or a week. Most of the painful and often fatal cases of colic which surgeons, grooms, and coachmen are so ready to attribute to a drink of water, are the effect of either being kept too long without water or food, or of a sudden change of food to which the horses tubes have had no time to adjust themselves. The man who has lived for years on white bread, meat, eggs, tea, and brandy, is at once upset if put upon fruit, cabbage, and water, and thousands of such men gravely believe that fruit, vegetables, and water are dreadfully unwholesome things. On the other hand the South Sea Islanders brought to New Zealand by the missionaries, and fed with white bread, meat, and tea, instead of the fruit, vegetables, and water on which they were reared, generally die of dysentery. A machine adapted to pulp grass or turnips, is not in the right form to crush oats or wheat, nor *vice versa.* All nature's changes are gradual, and if a horse's food is to be entirely changed, it should be done slowly and cautiously, so that the tubes may adapt themselves to the altered work required from them. Inattention to this has caused a superstitious dread of roots and green meat for hardly worked horses, though they would all be the better, get less "stale," and stand their work and high feeding better, if daily allowed to mix with their hard dry food, a very little of the succulent vegetables natural to them, and for which they crave so eagerly.

75.—However highly or moderately you intend to feed a horse let him be fed by weight or measure. No horse can be well fed in any other way The very dainty and the very greedy feeder equally demand it. It is the only way in which the horse can be got to eat at the best time to suit his work, and to regularly take the exact quantity that his digestive organs will best deal with before the next meal. It also gives the feeder an opportunity of obtaining the first intimation of anything wrong with the horse, if the regular measured quantity is not eagerly and completely eaten up. If the horse is a delicate feeder it is the more essential that he should never have food that he will not eat standing under his nostrils, whilst the gross feeder should not be allowed to eat so much at one meal that he cannot take his allowance at the next, nor to break his wind as many horses do by perpetually swallowing hay. However highly you want to feed a horse, no more should be given him at once than he will eat up with some appetite left, except when the horse will necessarily be left long without attention as after the last feed at night

76.—Then how often should we feed him? Go to nature again and you will learn your lesson at once. Look first at the colt. How often does he suck? Every half hour at the farthest. The calf may lie down three, six, or even twelve hours. When a wild cow hides her calf and is watched she will sometimes not go near it for thirty-six hours, and the calf will be perfectly quiet. The foal rarely lies, even asleep, for more than half an hour, and its mother's milk runs away if not drawn for two hours. Look at its mother and you may watch her many a day and many a night before you will see her refrain from eating half an hour together. The cow will lie down all night peacefully chewing what she gathered in the day; but the mare has no such reservoir, her small stomach will not hold enough to keep her digestive organs going a single hour, and she requires no long sleeps. A look into the interior of either animal teaches the same lesson. In the horse we see a piece of machinery that must be supplied little and often—a manufactory without a warehouse. There is nothing adapted to go long without a fresh supply, and we see by his habits in a state of nature that his appetite prevents him from doing so.

77.—Experience too has proved that by frequently feeding and watering the horse, more work can be got out of him, and that he will be less liable to any kind of disease of the digestive organs. Directly the old fashioned mistaken system of keeping plough horses in the field all day without a feed, which had been practised harmlessly enough with the ruminating bullock teams, gave place to the midday bait, the pace improved, the whip was abolished, and twenty-five per cent. more work was done.

78.—Four hours is the outside time that the horse should work without feeding, and where convenient the time would be better shortened to three hours. The last feed at night, say at 10 p.m, should be double that of any other, and should be the only one at which he should have more than he will eat up without a pause. Then, if at all, he should have some hay to grind up at his leisure, as it will give a longer slower supply than chaff and corn would do. The idea that the horse will or should lie down and sleep all night is not entertained by those who know the animal. The horse never sleeps long together. The foundered horse will lie down all night, and all day too rather than put his weight on the inflamed and sensitive laminæ, but not a horse than can stand without pain. The hard worked horse should have every facility offered him for eating and drinking during the night.

79.—As to quantity : the Shetland pony will require a very different allowance to the Shire horse, and all the intermediate sizes will want proportionate quantities, supposing them all to be equally worked. As a general rule the more good food a horse can be got to digest well the more work he can do.

80.—The largest sized dray horse at long hard work every day should get 18lbs. corn, 12lbs. roots, and 18lbs. of hay, cut into chaff.

81.—15lbs. of corn and 10lbs. of good meadow hay, with some roots on his resting days, is enough for the largest hunter in his hardest worked season.

82.—15lbs. of corn, 7lbs. of roots, and 10 of good meadow hay, is enough for the ordinary sized, hard worked, cab, coach, or omnibus horse, with more roots on Saturday night or whenever a little rest can be forseen.

83.—12lbs. of corn, 12lbs. of roots, and 12lbs. of clover hay is enough for the heavy farm horse at full work. The corn should be reduced to 6lbs. and the roots increased whenever short days and bad weather make the work short or irregular. Cut straw may also take the place of clover, when the work is not pressing. Good bright sweet straw cut up and mixed with roots pulped is better than musty hay at any time.

84.—10lbs. of corn, 7lbs. of roots, and 10lbs. hay, are quite enough for light worked carriage horses, 15½ hands high. When the work is very light, 5lbs. less corn, with 5lbs. more hay, with more roots, should be given. If the work is very light and irregular, the pace never very fast, no long journeys, and the horses required to be very steady, 20lbs. of good hay, and 14lbs. roots only may be given.

85.—Ponies and small horses must be fed in proportion to their size. They do better without corn than large horses will do. A child's pony should not have corn unless its work is regular and fast. They will be more gentle and reliable without corn, but they should get some roots or grass with their hay.

86.—With hard worked cart or plough horses, one-third of the corn should be beans. Barley may take the place of oats with them if cheaper. Maize or wheat may form part of their food if all the hay or straw is cut into chaff and mixed with their corn.

87.—For hard worked hunters, omnibus, coach or cab horses, about one-third of the corn may be beans, the rest had better be oats or barley, or both.

88.—For carriage horses all the corn should be oats, beans are too stimulating for light work, and maize imparts an unpleasant smell to the horses that eat it.

89.—All corn is better crushed for horses when it can be done at a moderate cost. With young horses getting plenty of chaff with their corn, it is not necessary, but with a very old horse it should always be done. It is desirable too that oats should be crushed when given to horses that are working on land from which a crop of very clean wheat is expected. Barley goes farther when boiled, but should only be given in any large quantity to horses at slow work. Bran should be given occasionally especially if roots are not used. Sharps may with advantage, either wholly or partially, take the place of any other corn for horses at any slow work, however hard. We have used them largely with all kinds of horses. There is no kind of corn on which horses look better. They may be too fattening for fast work. They must be largely mixed with chaff, and strictly allowanced, or from their excessively nutritious character they will founder almost as certainly as wheat.

90.—Hay is a term applied to dry grass of any description. It may be so well made and from such good herbage that horses will look well and work well on it, without any corn ; it may be so bad as to be unfit to put before a valuable horse, and most injurious to any. Meadow hay is the name given to hay made from permanent mixed pastures; it may be upland meadow or water meadow; the latter is not fit for horses. Upland meadow hay is the hay most used for fast horses, and trainers are very particular to see that it is good. It is sometimes largely mixed with buttercups, dandelions, and other injurious herbage. If good and well made it will be green and have a nice smell. Italian rye grass makes a good hay for any kind of stock, though it is more used in its green state, being much grown near cities where sewage irrigation has been introduced. Clover hay when well made is nutritious and fattening, but is spoiled with less rain than meadow hay. When made in good weather it will be leafy, and much liked by horses. Much the same may be said of sainfoin hay, which is better than clover. A mixture of green oats and vetches makes a useful hay for any stock. Lucern is little grown in England, but is much grown in good deep land in warmer climates, where it grows several crops in a year.

91.—In climates too dry, or on land too poor for long grass, oaten hay is much grown, and it does very well for horses of any description. The oats should be sown thickly and cut about three weeks before the corn is ripe. When well made, oaten hay will be green, but it is often left too long in the field both before and after cutting. On rich swampy land Timothy grass will give heavy crops of hay, and although coarse looking, animals do well on it.

92.—A great many horses are much injured in wind by getting an unlimited quantity of hay. Most trainers and many coachmen prefer hay more than one year old. We suspect that the only advantage of using it is that the horses do not like it so well, and therefore eat less of it, an advantage that may be secured by giving only a weighed allowance. It sometimes happens that finer weather has enabled the hay of a preceding year to be better made than that of a current year, which would be of course a very substantial reason for preferring it.

93.—Roots for horses include carrots, parsnips, Swede turnips, kohl rabi, mangold wurzel, and potatoes. All horses will eat carrots eagerly; they often require some teaching before they appreciate other roots: this may be done by mixing them with carrots at first. Carrots are relaxing, parsnips are fattening, Swedes are the best roots to give a horse in large quantities, mangolds improve in late spring when other roots deteriorate, kohl rabi is more suited for milch cows than for horses, potatoes should not be given in large quanties and should be either boiled or pulped. All other roots are best pulped and mixed with chaff, but where there is no convenience for that they may be sliced, or merely washed and put in the manger for the horses to gnaw to pieces themselves. For fast horses the quantity should never be large, but a small daily allowance keeps hard fed horses from getting "stale," stiff, and husky, and adds years to their life. With farm horses they keep the wind right, which so often goes wrong with great quantities of hay alone, and to some extent take the place of green food during the winter, so that the root fed horse comes up from grass or returns to it without any extreme or dangerous change to affect his digestive organs.

CHAPTER V.

WATER.

94.—It is distressing to think of the amount of discomfort inflicted on the horse by the ignorance of his owners and keepers on this simple subject. "Water, water everywhere, and not a drop to drink," must often be the inward cry of the poor, thirsty, hard worked and dry fed horse. On his natural green pasture he could manage to exist some time without water, but compelled sadly against his will to live on nothing but corn and dry hay, how hard it must seem to him to be rushed through or past each tempting stream, and to be scolded or kicked when he would gladly drink the water in which his own dirty feet have been washed. Thousands of grooms have lived and died under the impression that their chief duty was to find out how little water a horse could live on. For hundreds of years grooms have been taught by the great diplomatised authorities, who are supposed to know everything and never make any mistakes, that a hungry and thirsty horse will get colic or inflammation of the bowels if allowed to drink before he has eaten his corn. Now, these same great authorities have just discovered that the poor horse must not have a drop of water immediately after he has eaten his corn.

By killing and looking inside some old horses that had eaten a great feed of corn and had then swallowed a deluge of water, they discovered that some of the corn had been washed out of the stomach into the bowels before it was prepared to go there. And although that is exactly the practice they have recommended to every groom and horse keeper for hundreds of years past they have now found out that is just what ought not to be done. If these great authorities had gone to nature for instruction, instead of endorsing each others blunders, they would long ago have found that the mischief in both cases resulted from keeping the poor animal so long without water, and that the horse was destined by nature to take both his food and drink often and in small quantities.

95.—With the exceptions we shall mention the horse should always have water within his reach and be allowed to take a few sips at a time with his dry food. When he returns from long fasting or great exertion the necessary fluid he will crave for and which alone can carry all that is wanted into or out of his system, should be supplied in small quantities and frequently until his thirst is appeased, after which he may safely be left to help himself.

The horse like most other animals prefers the water he is accustomed to drink, even though it may not be pure or good. Any great change of water is avoided by careful trainers on the eve of a race.

96.—The common cruel practice of keeping a horse for fast work always short of water, has often appeared to result favourably from the fact that it has prevented the horse from eating too much hay. A horse that could not get enough water could not eat as much hay as he otherwise would have done, and we have pointed out that greedy horses often unfit themselves for work by eating too much hay. But the proper limit can be and should be put on the consumption of hay, without keeping a horse in a painful state of fever by depriving him of the only fluid that can keep his blood and blood vessels in a state fit for work, and carry nourishment into and poison out of his system.

97.—Having said so much about never keeping the horse long without food or water, this will perhaps be the right place to point out the advantage of timing his meals to his work, and keeping as much room as possible for his lungs when preparing him for short arduous exertion. For such work his lungs will want all the room they can get, and he should have as little to carry as possible, besides which the nervous excitement he undergoes will destroy his appetite and be fatal to good digestion. Only nervous horses are now employed at such work, and when such horses can get any sign that makes them suspect what is coming on, they will often fast too long of their own accord. With many horses the trainer has to conceal his usual preparations for a race to prevent them from going off their feed altogether. Coach horses should fast two hours before their one hour's desperate exertion. The hunter usually gets his fast on the way to his work, and the race horse comes to the post with his contracted bowels more tucked up than usual. There is no doubt that all of them are the better for having no recently swallowed food or water to dispose of under such excitement.

98.—In everything connected with animal life we must bear in mind that water is the fluid which must carry everything necessary to build up or pull down every part of the body, and that this is done by means of pipes which like the pipes of a pump, can only act when moderately full. The torture which an animal feels when thirsty is only a necessary admonition of nature to attend at once to this necessary condition of life and health. This is so necessary that when blood is let out of a vein or artery, life is only sustained by a rapid absorption of fluid from the surrounding tissues, causing a strong sensation of thirst. In this condition life has been saved or prolonged by injecting warm water into a vein. The same remedy has succeeded when a great sudden loss of fluid has taken place through the blood vessels of the stomach, as in cholera. A great loss in the volume of the blood, though a more gradual one, is produced at hard work, through rapid perspiration and respiration, and it is as important to health as to comfort that the loss should be quickly supplied. As the horse does not take drugs or spices, or narcotics with his water, his thirst is a natural one, and never liable to mislead like a craving for tea or spirits.

CHAPTER VI.

AIR.

99.—In making provision for the sustenance of any animal we are accustomed to think of food as the most important thing, then of water, then of air. This is reversing the real order of their importance, but it is natural, because food is the expensive article, and the one left to our judgment and discretion. We usually take the water as we find it, and we can do nothing with the air except spoil it. But the trouble we have to procure food and the unlimited provision which nature has made for the free supply of air, should not mislead us as to their relative importance. Whilst all three are indispensable for life, air must stand first both in instant and imperative importance, and in the necessity for its absolute purity. The food of the ox may contain from 3 to 15 per cent. of nourishment, that of the horse may range from 5 to 25, that of man from 10 to 50, that of the bee from 50 to 90, but with all of them the air must contain just about 21 per cent. Three per cent. excess would deprive them of sense, and burn their lungs to ashes ; three per cent. deficiency would slowly suffocate them.

100.—By measurement the quantity of air demanded by any warm blooded animal is beyond all comparison greater than that of the food, but even by weight the lungs must be supplied with about four pounds of oxygen for every pound of food provided for the stomach. The water we drink is well filtered before it can reach the blood, and the food is strictly confined to the one long tube provided for it, and never comes in contact with the blood, except such prepared portions of it as are selected by the minute lacteals in the walls of that tube. No such precautions are taken with the air ; nature has mixed it exactly as the lungs of all animals demand it. and has taken the most wonderful precautions to keep it so, and therefore she has made no provision in the animal structure for straining or purifying it in any way, before it comes in direct contact with the blood. Consequently any animal can be far more easily injured or destroyed by impure air, than by impure food or even water.

101.—According to Dr. Tanner's experience we can live forty days without food : we know that we can live some days without renewing the supply of water : we cannot live five minutes without a fresh supply of air. A horse or a man can support action or thought with a great deficiency of food, but any deficiency of oxygen will at once paralyse him. Let five throbs of unoxyginated blood be sent to his brain, and the dray horse could not move his own tail. and William Gladstone could not repeat the alphabet. The most healthy children are often those who get the least food and the most air. The little rosy bird keeper who lives on a shilling a week in the open air is often an object of surprise and envy to parents whose pale pampered children are coddled up in ceiled rooms. We can eat and drink enough to keep us going for twelve hours, we cannot lay up one minute's store of oxygen ; we can run and jump when hungry and thirsty, we can do neither when our lungs cannot supply us with sufficient air. Excitement will make us forget that we are hungry, no excitement will take us over a hurdle when the weak knees tell us that the lungs cannot get oxygen.

102.—We know very little about what life is. Three hundred years ago physicians did not even know that the blood circulated at all ; now we know that it must come to every part of the body, constantly loaded with heat and oxygen, and return every minute or two to the lungs for a fresh supply, and that the pace at which this can be done limits the amount of exertion of which any warm blooded animal is capable. Still we do not know all that it does in its constant round, nor can we point to the exact reason why we cannot act or think a moment without it, or why all increased bodily exertion demands a corresponding increase in the supply of air to the lungs, and of blood and oxygen to every part of the body. For our present purpose we must be content to know that such is the case, and spend a little time in trying to understand how it is done, as no one can have even a rough idea of how to keep an animal machine going at its best pace unless he understands a little about the circulation of the blood.

103.—Early in the year 1553 an exiled Spaniard named Servetus published a work in which he pointed out that all the blood in the body was regularly sent from the heart to the lungs, and brought back in a purified state to the heart. This grand discovery was regarded as a greater crime than the comparatively small discovery of Galileo in proving that the planets circulated round the sun, so that instead of being tortured, imprisoned, and humiliated, and threatened as poor old Galileo was, just 80 years afterwards, this young and truly great and able man was burned in the autumn of the same year in which he published his book. He had previously incurred the fatal enmity of both the Pope and of Calvin, by pointing out that neither of them were infallible, and now he dared to add the doctors to the list of his powerful persecutors, by giving positive proofs to the world that they had muddled away for thousands of years without learning the A B C of their profession, or knowing anything about the beautiful machine, the whole management of which they presumed to monopolise. Of course the doctors declared that the blood did not circulate, and helped the priests and parsons to hunt up all his books and put them in the fire. In this they succeeded so well that only three copies were left, and this great flood of light and knowledge was shut out from mankind for just three quarters of a century.

104.—Still the blood would circulate, and in 1628 Harvey had the honour of publishing a book in which the great discovery of Servetus was repeated and completed by showing something of the purpose for which the blood was purified in the lungs, and what was done with it afterwards. Since then physiologists have been continually discovering some beneficial purpose accomplished by this circulation, and the greatest minds have learned to bow down in reverence to a process so complete, so comprehensive, and so economical. Physiologists, anatomists, chemists, and mechanics, have all learned much by observing the work accomplished, but the ablest physiologist cannot tell us what is life, though he can give us a thousand proofs that stagnation is death ; the chemist cannot tell us how the oxygen and carbon combine so as to maintain heat with such unerring regularity in any climate ; the mechanic cannot discover how a fluid so thick as blood is passed so rapidly through tubes too fine to pass the purest water, nor can he show us where the motive power originates. The most elaborate, complete, and delicate machine ever constructed by the skill of man, is a clumsy, bungling, wasteful piece of mechanism compared to the organisation that circulates, warms, and invigorates the blood of the horse.

105.—As it is a circle, without beginning or end, we may with almost equal propriety take it up at any part. If our review of the process could be more lengthy and complete, it would perhaps be most natural to begin where the chyle, selected from the food by the lacteals, is first introduced into the returning stream of venous blood ; but as we must confine our examination of the process to what is strictly necessary to get a rough understanding of the subject we will begin at the heart, at the great double force pump which appears to keep all in motion.

106.—To the right side of the heart comes a stream of dark fluid, composed of blood, that has gone the round of the system, and of newly made chyle, selected and extracted by very fine lacteals from the food passing through the bowels. This mixture is immediately pumped out of the heart into the lungs to be warmed, purified, and supplied with new oxygen. It there gets rid of its load of poisonous carbonic acid gas, and is changed from a dull dark to a bright red colour. How is all this done in a few seconds? The lungs are a beautiful sight under the microscope, and would be far more so if it were possible to see them at work. They contain millions of cells, too minute to be seen by the eye, yet each cell receives its particle of blood or its particle of air, and without confusing them together, allows the air to get near enough to the blood to give it oxygen and to take away carbonic acid gas, to burn up waste material and to effect all the known and unknown changes necessary to fit it to carry new life, and heat, and vigour to every part of the body. Every particle of blood is made to meet the fresh air, not only without cooling it, but heating it in the process, and heating it most when the air introduced is coldest. Having been thus fitted for its work, the blood goes back to the heart, entering it now on the left side, and is immediately pumped into the arteries which carry it all over the system, delivering the required quantity as fresh and pure at the feet as at the heart itself, pulling down and building up, wherever and whatever is necessary, carrying nerves, brain, muscles, hair, hoofs, skin, or bones, through vessels too small to carry water, and flowing into the veins comes back again to the right side of the heart to be again passed through the warming and purifying fire in the lungs. All this is done so rapidly that the whole of the blood in the body passes through the heart in a time varying from one to three minutes, and the faster it is kept going by reasonable exercise the more completely does it accomplish its work.

107.—What we call fire is the rapid combination of carbon with oxygen. Wherever this combination takes place, either quickly or slowly, heat is produced in exact proportion to the amount of carbon and oxygen mixed together. We see it going on in our hearth fires fast enough to produce a destructive flame, and still faster in the smith's fire, where the oxygen is rapidly forced into contact with the carbon by the smith's bellows. The same thing goes on slowly in the lungs, restrained and regulated by a strictly limited supply of oxygen. One principal reason why the blood is heated most in cold weather is because cold air lies in less compass than warm air, so that the same pipes can convey more of it, and consequently more oxygen at each inspiration.

108.—Thus the lungs are a wonderful self regulating furnace that warms the blood just as much and no more than is needed, whilst the warm blood by its rapid circulation through a beautiful system of pipes warms every inch of the body, and with the help of a good, healthy, clean skin, will preserve a uniform temperature of about 100 degrees, whether surrounded by a temperature 20 degrees below zero, or two hundred and sixty degrees above it. Thus the blood is always kept warm enough to circulate through tubes too small to be seen, yet never warm enough to injure the inconceivably fine texture that composes the millions of cells in which the blood meets, without mingling with, the air in the lungs.

109.—There is a yet more beautiful and wonderful feature in connection with this circulation which we cannot understand without going a little into the composition of the blood itself. The greater part of the blood is greasy water, but about thirteen per cent. of it consists of minute onion-shaped particles, or little soft, tough, flattened circles, about the three thousandth part of an inch through their greatest diameter, and the ten thousandth of an inch between their flatter sides. These are called blood corpuscles, or blood cells, and consist of a material called cruor, which has the property of attracting oxygen from the air, and of parting with it to the various tissues of the body, or in other words of picking it up in the lungs, and carrying it to any part of the body that wants it. These little cells go out from the lungs loaded with oxygen, which they take to combine with carbon in the distant tissues of the body. They return with their colour changed from red to black, and loaded with carbonic acid gas, produced by the combination of the oxygen with the carbon, in the exhausted tissues of the body. Thus whilst the purely liquid part of the blood gathers heat in the lungs, and carries it to every part of the body, just as warm water would do passing through a furnace, and running back through the pipes of a hot-house, these little blood cells go out, not only warmed themselves, but carrying out the material with which to keep up a little fire at the extremities, and bring back the poisonous products of that fire, to be sent out with the warm moist air from the lungs. They thus keep up heat by burning away waste material at the extremities, just as it is kept up on a larger scale in the lungs. They are so tough that they will squeeze through a space smaller than themselves and recover their original form. They are smaller in the horse than in man, and are still smaller in the deer, probably smallest in those animals liable to be called on for the most rapid circulation or most remarkable for speed and endurance.

110.—We have spoken of these blood corpuscles as composing thirteen per cent. of the blood, but that is only a rough average estimate. They vary from something like five to twenty per cent., and the cause of their variation is a most important consideration in connection with the subject of this chapter. The smallest per centage is found in the blood of poor needle women, or of any females poorly fed, getting little active exercise, and above all shut up in close rooms. The largest per centage is found in the blood of man, or any other animal, constantly at work in the cold open air with enough good nutritious food. With women shut up from the open air, the blood cells are usually so few that their feet are kept warm with difficulty, if at all. With too much hard work in the cold open air, the blood cells may get so large a per centage of the blood as to give a tendency to inflammation, when food or drink of an inflammatory character is indulged in. Poor blood can only be made good blood by good food and plenty of exercise in the open air ; high feeding without the exercise in the open air will only do mischief, and especially endanger the lungs. The blood cells can be slowly increased by the open air exercise, they can be rapidly decreased by shutting up in bad air, they can be instantly lessened by bleeding, and the corpuscles so lost cannot be restored for some weeks or months, under the very best treatment.

Thus Mrs. Heman's allusion to the "rich blood" of the Arab, is as physiologically correct, as it is poetically beautiful, and such rich blood must be cultivated in any animal that is to be capable of any extraordinary exertion. In other words, if the horse is to be fit for much, he must both be taken into the open air, and the pure air must be taken into him, if he is shut up at all. He must not breathe air that has already parted with its free oxygen, and become loaded with carbonic acid gas, or with the ammonia arising from stones reeking with the excretions of his own body.

111.—Now we come at last to the air itself. Roughly speaking the atmospheric air consists of 79 parts nitrogen or azote, and 21 parts oxygen. There is about one and a half per cent. of watery vapour, and a very small fraction per cent. of carbonic acid gas, but they need not be considered for our present purpose. This proportion of 79 parts nitrogen to 21 of oxygen is found in all free air, and is the exact proportion necessary for the welfare of the lungs in all warm blooded animals.

A very slight increase in the quantity of oxygen would injuriously increase the animal fire, whilst a slight diminution would depress and extinguish vigour, warmth, and life. Nature has accordingly made wonderful provision to prevent any alteration in these proportions, by endowing both gases with a peculiar constitution, which seems to give them almost an intelligent determination to unite together exactly in that proportion. Unless absolutely shut up, neither of these gases will rest in any other proportion ; the nitrogen will seek oxygen, or the oxygen will seek nitrogen, until the natural proportion is restored, so that the free open air is always right, and only shut up air can be much wrong. This remarkable law of affinity, so essential to animal welfare, and which appears to be quite peculiar to the atmospheric constitution, is so strong that it entirely overpowers the usual laws of gravity, and prevents the heavy oxygen when free from seeking a lower level than the light nitrogen, as other liquids or gases would do. This law causes just as much heavy oxygen to be found at the highest distance from the earth that man has ever reached, as at the level of the sea.

112.—There is another important practical result from this law, which must be considered. To avoid technical expressions we are sometimes driven to use not very accurate ones, that will convey our meaning to the general reader. We may here say that the unwillingness of these gases to part with each other, or to depart from the natural porportion in which they unite, increases as that proportion becomes more disturbed ; so that whilst the pure air freely gives up five per cent. of its oxygen to the blood in the lungs, it is very unwilling to give up another five per cent.. and absolutely refuses to give up anything beyond that, though breathed again and again, until the breathing animal dies. Consequently, for all practical purposes, air with 16 per cent. of oxygen is very little better than none, and with even twenty per cent. it would keep an animal depressed and starving for oxygen ; whereas air with the full 21 per cent. feeds him freely with the warming and invigorating gas.

113.—When the oxygen has not only been destroyed, but its place supplied with poisonous, depressing, carbonic acid gas, matters are made still worse, as such air refuses to carry out the carbonic acid gas that the blood cells bring back to the lungs and that which is produced by combustion in the lungs themselves.

Now a healthy full sized horse standing at rest in the stable, will consume about 285,120 cubic inches of air every hour ; from this he will extract 12,672 cubic inches of oxygen, and will discharge into the air 10,768 cubic inches of carbonic acid gas. This shows how necessary it is that the air of a stable should be freely exchanged during the whole of the night, if the horse's blood is to be kept in a state that will best fit him for his work.

114.—The more we study this subject, and the more we understand of the constitution and internal economy of the horse, the more shall we see of the importance of pure air, and how inseparably it is connected with the warmth, vigour, health, and efficiency of any warm blooded animal. To try to warm an animal by shutting the pure air away from it, is like trying to increase the fire of a stove by shutting in the dampers, or to make a candle burn brightly by putting an extinguisher on it. The only reason that this is not always seen to be equally foolish is that the beneficent laws of nature and the constitution of the air itself do not allow us to exclude it effectually.

Fortunately, air is not easily shut in or out of any place. Warm air will escape upwards if it can, and cold air will rush into its place. This law, added to the strong tendency of oxygen to combine in the right proportion with nitrogen (111), prevents thousands of persons from killing themselves and their horses on the spot, as they would do if they could exclude air from their buildings as easily and completely as they can shut out rain. Perhaps we are wrong in calling anything fortunate that prevents any violation of the laws of health from incurring its full penalty, and it is at least open to doubt if it would not be better for a few thousand horses and children to be annually killed outright, than for the whole race to suffer and degenerate by being partially deprived of the vital air which nature has provided so liberally, but which the ignorance of man is so ready to treat as an enemy instead of a friend.

CHAPTER VII.

EXERCISE.

115.—Possessing large fibrous muscles, intersected with the strongest motor nerves, and with arteries that supply both with a continuous stream of highly oxyginated blood, the horse is in every respect adapted for motion, and cannot long be deprived of it without lessening his health and efficiency. In some of the most ancient wars we read of, the aim of each party was to get their enemies cavalry shut up where the horses could get no exercise, well knowing that without exercise they would soon become useless. Tying up in a stable, where he cannot even turn round, is a great violation of all his natural habits, and one that should never be practised except on horses that get a great deal of daily exercise in the open air. Cart or plough horses that work in the open air eight or ten hours a day, will take little harm from the restriction, although they would be much better with liberty to change their position in the stable as often as they please. Horses whose work is short and fast, demand the indulgence of a loose box for their long resting hours, and when the work of any horse is irregular he can only be kept fit for it by giving him regular exercise in any long intervals that occur between his working days.

116.—The young horse intended for slow work may be put to some useful occupation as soon as he comes up from grass, or as soon as he is broken in, but for most descriptions of fast work, where horses are valuable, and are treated carefully, the grass fed horse will be gradually inured to a change of food, and be merely exercised for some time before he will be put to hard work.

The racer's work is almost all exercise, intended to qualify him for perhaps less than one hour's work during his whole life; whilst the hunter's work is usually too trying to be continuous without intervals of rest, long enough to require a good deal of renovating and invigorating exercise. Long periods of inaction are injurious to any horse; regular work only can qualify him for work, so that unless the work required of him is of a regular daily character, the stabled horse must get regular exercise, either to put him or to keep him in condition for hard work.

117.—There are many degrees of efficiency demanded from the horse, and consequently a great difference in the amount of pulling down and building up that must be done (56), and of the amount of exercise that he must take, and of the character of the food he must eat. The exceedingly high and hard condition of the race horse is one that can only be maintained for a short time, and is not desirable in any other. With him the rule is, all the corn that he can be got to digest, and all the exercise he can be got to stand, for some months before he is required for racing. Opinions still differ a little as to what that exercise should be, but the tendency of modern practice has been to rely more on slow and less on fast work for his preparation. Walking five or six hours a day in the open air is known to be the means by which all his muscles and sinews can be hardened without danger of straining. All his motor nerves, air pipes, and blood vessels are enlarged to their utmost capacity, by the circulation and breathing being so long quickened by gentle exercise in the pure air, enriching the blood with such a long and increased supply of oxygen, and cultivating to the utmost that large per centage of blood corpuscles (110) ready to carry life and vigour to every part of the system, and to meet with ease the emergency of the most exacting pace. A short steady gallop, of a few hundred yards, on soft ground and up hill, may be given daily, just to bring the lungs into their full play, and the distance may be increased to a mile or two as the race draws near. But long-continued quickening of the breath is more to be relied on, and is far less liable to break a horse down than any violent exertion.

118.—If as good a feeder as he should be, and not excessively nervous, he will get too fat on this treatment, and fat even if so placed as not to obstruct the play of the lungs and the expansion of blood vessels, would be only an additional weight to carry and every pound of weight is an important consideration in a race.

Fat is kept down without either starving or over working, by calling on the pores of the skin to carry it away. This is done by working the horse briskly, in thick clothing, about once a week, or as often as is found necessary.

119.—One hour after he has had his first feed in the morning, having had as much water as he can drink by him all night, take off his usual clothing and put on a doubly thick rug and hood, kept for the purpose. Walk him briskly for an hour to open all the pores of the skin, then begin a slow trot, gradually increasing the pace for twenty minutes; then canter slowly for about two miles; then take him at once to the stable and heap half a dozen blankets or rugs on him, and give him water to drink in small quantities.

In quarter of an hour take off all the clothing and send it out of the stable to dry and sweeten, then let a couple of men scrape and rub the horse quite dry. Put on some blankets or rugs that can be changed in an hour's time for his usual clothing. Every training horse should have a duplicate set of clothing, and every opportunity be taken to put out one set in the open air in fine weather, or to air by the fire in damp weather. We have shown (56) how important it is that the skin should get every assistance to carry off carbonic acid, and the worn out and pulled down materials of the vigorous, because rapidly changed, body.

The clothes should never be saturated with the impurities and moisture that the skin is constantly throwing off, but should be kept in a state to absorb them readily, and be deprived of all injurious odour by frequent exposure to warm, dry, sweet air. Nothing so good as free exposure to sun and wind, and next to that is an open fire.

120.—A far better way than the above to dry a horse after a sweat when the weather will permit, is to bring him straight from his canter to some sunny spot outside the stables, and taking off the clothes sponge him freely with water, either warm or cold, over every part of his skin, and quickly scrape with hoop iron, and rub dry with towels. This will refresh the horse and make him dry and comfortable in a much shorter time than he could be dried without the water. It is a most refreshing process for any heated horse to go through at any time, one that they thoroughly enjoy, and one that will prepare them for a second exertion more quickly than anything else we know of.

121.—This sweating process has gone out of fashion a great deal lately, but nothing has really taken its place. We have no doubt that it will come back in an improved form. We believe there used to be too much galloping in the heavy clothes, and too little attention to getting the horse quickly and thoroughly dry. There is still a stupid belief in physic, which is more difficult to understand than the large fortune made by Holloway's pills.

122.—Less than two years ago we had an opportunity of closely watching the training of two ordinary horses by an amateur. One was a chestnut gelding that had been bought for £30, and commonly driven by a lady. The other was a black mare bought for £10. There was little if any difference in their ages. These horses were fed well on corn and cut straw, but had no hay, and were daily allowed to nibble a little grass, more or less as their bowels appeared to demand it. They never tasted physic. They were sweated about once a week, and were always washed dry and made comfortable as soon as possible. In fine weather they were allowed to crawl about, sauntering and nibbling, with a boy on the back of one of them, so as to keep them a great deal in the open air.

123.—After about three months of this training the horse could beat the mare without an effort, giving her five stone. He ran at the public races, for which he was trained, and carried all before him against a number of good professionally trained horses. On the first day he won a two mile hurdle race, over eight flights of hurdles, carrying nine stones three pounds; time, four minutes and six seconds. On the second day he was made to carry twelve stones seven pounds, but still he won easily, running a mile and a half in three minutes and four seconds over six hurdles. He was purchased for two hundred pounds by an experienced racing celebrity, and was of course put into the hands of orthodox trainers, and liberally supplied with physic. Since then he has never won anything in good company, and at the last races on the same course over the same hurdles he was easily beaten, and evidently for want of condition, by his old stable companion, the black mare, that was so inferior to him when both were in the same unprofessional hands, when both were nibbling grass in the fresh air, and both were alike ignorant of Barbadoes aloes. The mare had all along been treated in the same natural way.

This is by no means the only instance we could give in which nature and common sense have triumphed over drugs and professional orthodoxy, but we give this case because the main facts are on public records, and it is a case in which the two systems were so well tested on the same good tempered animal.

124.—The horse in training should get a light feed and leave the stable at daylight in the morning, as walking or cantering on the dewy ground or grass is very beneficial to his feet. His daily exercise should be divided into two or three periods of from one to two hours each, but any fast work he does should be done in the morning. He should not be galloped at all, either on the day he gets his sweat, or on the day after, and take care that he is never galloped enough to produce any sign of stiffness.

125.—No stereotyped rules can be laid down as to the quantity of exercise any horse should get to keep him in good wind and free from fat. No two horses want exactly the same treatment. Some restless horses will take nearly all the exercise necessary for them, by constantly pacing backwards and forwards in a loose box. Some delicate feeders will not eat enough to keep up to much work, and will eat least when most worked. Others can hardly be kept free from fat by any amount of work, and not a few horses have a load of internal fat, more injurious than any other that must be got rid of, even though they may look like skeletons on their neck and ribs.

This latter tendency is the most difficult to estimate, and is one in which the most experienced trainer may be deceived, unless he knows his horse very well. So long as a horse's wind continues to improve by sweats and hard work he should get it, but the moment it ceases to do so, there has been enough of it, and the fast work should be lightened off.

But, however little work he may demand, see that he gets enough crawling about in the fresh air, besides getting as pure air as possible to breathe in his box.

126.—It will of course be best to get a horse up to his highest capacity on the very day that he is wanted, but that is a nice point that cannot always be attained, and it is better to have him ready with every ounce of fat off him, a few days before he is wanted, than to have to force it off with double work just before his race. We would even rather leave a horse too fat—bad as that would be—than overwork him on the last few days preceding the race, at the risk of making him stiff or spiritless. Unless a vicious or unruly horse it is very desirable that he should come to his work full of life and spirits, and not in a condition that will want any driving at it.

127.—With most horses it is a great risk to have to resort to whip or spur to bring out their last and best effort. Many a race is lost by their use on a horse previously doing his best. Most horses will "shut up" with any violent application of them, and many will do so with the first touch. There are a few race horses so easy tempered that they will bear and even require pushing to the last, but there are very few that do not become sufficiently excited in a fast race to do their utmost far better without punishment than with. Nothing could be a more degrading exhibition of bad temper, or more certainly show a man's unfitness to be a jockey, than savagely flogging a willing sensitive animal that evidently cannot win.

128.—What we have said about food that passes the bowels pleasantly and gives up its nourishment freely (72) is of still greater importance in selecting food for the race horse. All corn for him must be perfectly sweet, but never so new as to squeeze into balls rather than pulverize; it must be perfectly dry, but must never have been kiln dried, as kiln dried oats frequently disorder the kidneys. Hay must be free from injurious herbs, have been well made, quite sweet, and grown on good strong land. The latter is important, as no matter how sweet and good hay may appear, if it is grown on gravelly light land it is not fit for the race horse. Many careful trainers never change the ground for their hay, but constantly procure it from ground that they have found to be suitable. All agree that the best hay for the purpose is grown on well drained clay, rather than on light land. Black Tartar oats, with their small berry, pass the bowels more pleasantly than any large berried oats. They should be mixed with an equal bulk of chaff, which is best cut from good, bright, sweet wheaten or oaten hay (91), and with one-sixth of their weight of good old crushed beans. White peas are used by some trainers instead of beans, but their effect on the kidneys is often bad, so that we should always prefer beans. The wheaten, or oaten hay chaff, will keep the bowels in better working order than meadow hay chaff, and with the proportion of chaff to corn which we recommend, no large quantity of hay need be given. A little bran, boiled barley, a carrot, or a nibble at grass, will keep the bowels open if there is a tendency to costiveness. Have nothing to do with physic, which only weakens and disorders the bowels of either man or horse.

129.—Getting a hunter into condition for his season's work does not differ very much from the training of a race horse. His condition is not so extreme, and is expected to last longer. He is allowed to carry a little more fat, but it should not be much. He may be allowed a little more hay, and if he will eat 10lbs. of black Tartar oats, and five pounds of crushed old beans, it is better to keep him regularly eating that, than to risk putting him off his feed by trying to get him to eat more.

130.—If inclined to get too fat he may be sweated in the same way as the race horse, and he may get nearly the same amount of walking and galloping before his work begins; but in the season he will get quite enough galloping at his work, and his walking exercise should not exceed six miles a day, when the intervals between his work are not longer than three or four days. But this must be regulated according to the very different amount of work he may get in the field, and the great difference in the amount of work that different horses will require. He should always be left free in a loose box, and there he will take all the exercise he needs on the first day after a severe run.

131.—The ordinary riding or light horse when not daily worked most often suffers for want of exercise.

We once heard a worthy citizen say, "My horse ought to take me there and back (40 miles) well in a day, as he never goes out of the stable all the rest of the week." Many persons seem entirely unaware that animal strength must be used, or lost, and cannot be bottled up six days a week for use on the seventh. The animal machine will fit itself for anything reasonable that is regularly demanded of it. The muscles will harden and enlarge, the arteries will expand, and the blood itself will become fit for hard work (109), if regularly demanded of it; but if a horse is shut up in a stable three days out of four, he soon becomes unfit for hard work, and if he does it at all, only does it with great danger and suffering to himself. Such a horse is dangerously eager for a gambol or a scamper when he first gets out of his prison, but soon finds that his softened and wasted muscles, his thickened pipes and poor blood, all fail him in any protracted exertion, especially if he be loaded with fat.

132.—There are few horses that are not quiet with regular work, there are very few horses that are really quiet without it. The strong impulse to take exercise which nature has implanted in all young healthy horses, almost compels them to play, and horse-play is generally dangerous, and often leads to the horse learning something, or getting into some mess, that makes him dangerous ever afterwards. Thousands of timid persons who would be immensely benefitted by riding on horseback or driving themselves about, are prevented from doing so because they are frightened with horses too fresh and too playful to be safe. We have known such persons afraid to ride or drive their own good tempered but playful horses go to a livery stable and hire horses that had been sold cheap to the stable keeper for real vice, but which were kept safe and sober by the excessively hard work of their wretched lives. No cruel overwork is necessary with the good tempered well broken horse, but long rests should be strictly forbidden, as alike destructive to efficiency, safety, or pleasure.

133.—If the work usually required from the horse is very light, let the corn be withheld, or be very limited (73, 84), and then a very moderate amount of daily exercise will keep the horse fit for pleasant and safe riding or driving, In most cases a lady's or gentleman's horse that is kept in high condition, and that is only ridden short distances for pleasure, should be well exercised by the groom on the morning of the day on which they are to ride it (73), so that it may take any gambols it pleases with him.

134.—For a highly fed horse (82), twenty miles a day for six days a week, at a moderate pace, and with a light load, is as much as he should regularly do.

When the pace is distressing and the load heavy, as in a mail coach, the highest fed horse can only stand half that distance. and will not last long at that. When the pace is moderate, and the distance not more than about ten miles a day, the feed should not be high (84), in which case the exercise on resting days need not exceed a five mile walk.

135.—Some authorities have stated that when a horse is required to take a long journey on one day of the week, he will be best prepared for it by giving him two such journeys in the week. This is quite contrary to our experience. We find nothing qualifys a horse for a long journey so well as moderate daily work, and we would never give him a very long journey by choice. It takes more out of a horse, and does not harden and invigorate so well as daily moderate work. If qualifying him for one long day's work in a week is the only object to be obtained by his work for the rest of the week, we would simply make up the week's work to a hundred miles, dividing it equally over three days, so as not to give him more than five miles on the day before and the day after the necessarily long journey. That is to say if the horse was obliged to go forty-two miles on the Thursday, we would give him sixteen miles on Monday, Tuesday, and Saturday. leaving only five miles each for Wednesday and Friday.

136.—One hundred and twenty miles a week, at seven or eight miles an hour, is all that a good highly fed horse will regularly do, and keep fresh and in good condition. We know that horses have been ridden and driven more than one hundred miles a day. So have men. But we would not care to number on our list of friends the man who could wantonly drive either of them to that distance. In America, Australia, New Zealand, and wherever horses are so unfortunate as to be cheap, some of the most brutal description of men are often endeavouring to gain notoriety by some such act of barbarity,

> And o'er their brimming beaker boast the inglorious deed,
> As if barbarity were high desert.

We have seen parties of such men start on fresh, high conditioned, well bred horses, and after riding them forty or fifty miles a day for a fortnight, on good summer seed grass, return with a part of the the poor brutes, worn to skin and bone, and with raw backs that no man with common humanity could possibly sit on.

Happily in England men riding horses to such a state, in a fortnight would at least stand a chance of being sent to prison. Such are the feats we read of, without the horrors of the real sight, in books that tell us that horses in those countries will travel forty or fifty miles a day for weeks together, on nothing but grass.

Dick Turpin's mare was no better than thousands of other mares, but Dick Turpin was a greater brute than most other riders. What the thorough bred horse will do is one thing, but what he is fit to do, and what the laws of any civilised country should let brutal men do with him, is quite another thing.

137.—Cart horses will travel day after day just about as far with their heavy loads at the rate of two or three miles an hour as the light horses will travel with their light loads at eight miles an hour, and twice as far as the light horse will continue to travel at ten miles an hour. Any of them can do far more in the summer season than they can do in winter. Before railways were general, light cart horses in the summer season often took veal to London, a hundred miles, leaving various parts of Wiltshire on Wednesday evening, and getting into London market early on Saturday morning. They returned in an almost equally short time, each horse drawing a ton besides the cart or waggon both ways, although they got little more than time enough to eat their food on the way. We know one entire horse that did this seventeen weeks following.

Only picked horses can stand such work, and they lose flesh on it, so that it is very difficult to keep their shoulders from galling. There is no doubt that cart horses are better fed on their journeys than light horses generally are ; both because they are not expected to eat corn without chaff, and because they are fed and watered by their drivers, instead of being left to the tender mercies of an unknown ostler

138.—The cart horse does not often get left long without exercise, except in bad weather. When highly fed, his legs are more liable to suffer for want of exercise than those of the light horse. We have pointed out (83) that the corn should be promptly reduced, and roots substituted whenever the prospect of bad weather is likely to confine the horse much to the stable. Plenty of roots and bran mashes will keep down inflammation, but exercise must be found for the horses even when the ground is covered with snow. Where chaff cutting and corn crushing are done by horse power at home, they will give some exercise, and timber, manure, or stones may be drawn on a sledge. No horse need work all day, but every horse should get a little exercise, and failing any work, where riding and leading is not practicable, give them a chance to play in a field or large yard. When cloths can be fastened on them they may be advantageously turned out, even on the snow, for a short time. In fact, anything is better than letting them stand for days together tied up in their stalls.

139.—No horse, not even the slowest cart horse, should be expected to start a heavy load after he has been long standing idle, more especially if the weather is cold. Inattention to this makes hundreds of good horses jibs.

The horse that from any cause has been long out of the collar should be started very carefully, and with something that he can move very easily ; but double care will be necessary when the horse has not only been without collar work, but without any work at all, and is consequently fresh, frisky, and impatient. To put such a horse to start anything that requires a slow, long, patient lean into the collar, is to incur a very great risk of spoiling him, and the risk is still greater if he is asked to start it two or three times before he is allowed to go straight off with it and get warm.

140.—For a long rested horse, however good, the carriage should be drawn out upon good hard road, where it will get rather a down than an up hill start, and where the horse can go straight off without any stops or turns. Directly he is fastened to the carriage he should be allowed to go away with it, and, if possible, without a check from either rein, be steadily driven a mile or two before the carriage is loaded, or he is asked to wait about and start at command. If the horse is known to be liable to jib, he should have a bridle and saddle and his own working collar put on him, and be ridden a mile or two fast enough to warm his shoulders and the collar on them ; then put on the rest of the harness, and buckling the reins into the traces, let some one hang on to them whilst you lead him about. If he can be stopped by the traces the assistant must ease off and let him go, but do not put him in any carriage until he will walk slowly on with all that an assistant can pull back. We say slowly, because a jib will usually draw five times more at a fast, than he will at a slow pace. When you do put him in the carriage don't wait about, but drive him about until quite warm and steady before you take up any load, or risk any stopping, or starting, or waiting about. A horse that has once jibbed will always be liable to do so again, and is especially unfitted for occasional light work. The horse that has to pull hard and steady every day will usually do it, even though he has been made a jib, but such horses will always be troublesome after much rest. Remember, that in nine cases out of ten, it is eager impatience or fear, and not laziness or obstinacy that you have to deal with, and no whip should be heard or seen by such a horse until well warmed and settled down at his work.

CHAPTER VIII.

SHOEING.

141.—In a country like Great Britain, where the roads are generally metalled, shoeing the horse that has to travel on such roads may be regarded as a necessary evil. Where he can do most of his work in fields, over grass plains, or on roads not covered with stones or flints, a good hoof will be far better left without any additional weight, and without being nailed to any unyielding substance. The springiness of the horse is so much lessened by even the very best shoes, as to make the difference quite perceptible to the rider, notwithstanding the many springs that interfere between his seat and the horse's foot.

142.—There is a very great difference in natural hoofs. A few strong, tough, concave hoofs, grown on dry hard ground, will stand almost any roads without shoes ; others grown on soft rich swamps, without frequent cutting back, are so thin, weak, and flat, and have such unsound frogs, that they will stand no amount of work on any roads unshod. Few horses can do much without shoes after they have been accustomed to them for any length of time, especially if the frogs and bars of their feet have been once destroyed, as they are often with a smith's knife. The flesh attached to the hoof, like that attached to the human nail, is of an extremely sensitive character, and although it has been protected by nature with a thick insensible hoof, that hoof is not so capable of adapting itself to a greatly differing amount of wear and tear as the skin of the human hand or foot, whilst the larger surface of extremely sensitive laminæ demands a much more impenetrable covering. Thus in a bog, or on any soft gritless land, the hoof will sometimes grow so long as to quite impede the horse's motion, but when constantly worked on a flint road, it does not grow fast enough to supply the material that is there rapidly worn away. In the one case, the horse's feet can only be kept fit for easy and safe action by cutting away the surplus hoof: in the other, the sensitive feet can only be protected by the assistance of some material harder than the hard, tough hoof itself.

143.—The object of shoeing should, of course, be to give the necessary protection with as little additional weight as possible, and, what is of more importance, with the smallest amount of interference with the elasticity which lessens the violent concussion of the horse's great weight and speed, on roads necessarily made so hard and unyielding. The men who so long contrived to get paid for torturing the horse with their physic, their lancet, their blisters, and their firing irons, also undertook to superintend his shoeing, and were as ready to improve upon nature with his foot as they were with his stomach, skin, or blood vessels. Nature had done everything wrong; so these presumptuous meddlers set to work to improve the horse's foot by cutting away the frog, the sole, the bars, and all the middle of the foot, and then put a heavy ring of iron under the outside edge. This unyielding iron ring was nailed all round to what remained of the foot, so that nothing, but the play of the pastern, was left to protect his overtaxed nerves and sinews, on roads harder than nature intended them to meet, with all her softening buffers.

144.—With this treatment, the foot constantly contracted, so that the horse that had long been shod in that way, had soon quite a different shaped foot to the unshod colt; one that would not go a mile without a shoe, and often went lame with one.

The height that the thick and often turned down, or calkined, shoe carried the horse from the ground, put an extra strain on everything, and lessened his safety and efficiency, as certainly as a high heeled boot does that of a lady. Nature fought against all this as best she could for many generations, but there is a limit to the long suffering even of the horse and his owner, and many persons have lately arrived at the conclusion that nature knows better how a horse's foot should be made than either a veterinary surgeon or a blacksmith. What Sir Charles Forbes, Doctors Bostock, Benjamin Bush, and other first-class physicians, have done to expose the rash experiments, and the presumptuous meddlings with nature practised by many of their profession on human subjects; those shining lights of the veterinary art, Lafosse and Fleming, have done to show up the vile treatment which the horse's foot has so long received. Horse owners are greatly indebted both to those intelligent, scientific, and practical veterinary surgeons, for their uncompromising denunciation of the too common destroyers of the horse's foot, and to the Scotch Society for the Prevention of Cruelty to Animals, for having brought out so many good essays on the subject, and for giving such prominence to Mr. George Fleming's admirable prize essay on horse shoeing.

145.—Much pity has been expended, and principally wasted, on the "poor child," or the "poor horse, without a shoe to its foot," which might have been better directed to the poor children, and poor horses, whose well formed springy feet, have been condemned to wear heavy, tight, clumsy, unfitting, unyielding shoes. The labourer's child, whose calves dwindle away to "mop sticks," because the child has been compelled to give up walking and springing, as nature intended him to, and to swing at the end of his legs a few pounds of ox hide and iron that will never bend with his wonderfully elastic feet, is hardly more injured and disabled than the horse, whose natural springs and elastic protectors are all cut away, to be replaced by a clumsy, ponderous, unyielding iron ring.

146.—The first journey that the young horse makes to the blacksmith's shop is generally the last in which he has the advantage of all the kind provisions which nature has made for his feet. The farrier there, too often makes him his patient for life, by ruthlessly cutting away the elastic cushion, called the frog, which is nature's natural support for the great flexor tendon. This cushion is nature's provision to support the centre of the horse's foot, to take off the strain from the sensitive laminæ with which the hoof is connected with the foot, to prevent the extreme depression and consequent strain on the flexor tendon, and to break the concussion caused by the horse's great weight coming so rapidly to the ground. When once severely cut away, the frog never entirely recovers its original efficiency, and will be a very long time before it will be even moderately useful. At the same time the enamel, like the enamel covering our finger nails, which covers the whole of the outside of the colt's hoof, and effectually retains its moisture and suppleness, is rasped away to make his foot fit the shoe, and to give it a round and uniform shape. Thus two of nature's most important provisions to secure an elastic tread, are ruthlessly destroyed, and the horse compelled henceforth to stump and jar away with his sensitive foot and loaded sinews resting entirely on the dried and unyielding crust of his hoof, made still more unyielding by being nailed to an iron ring.

147.—Then the soft horn that covers and protects the sole or bottom of the foot is pared away, as if it had been put there by some bungler who did not understand his business, and thus the farrier is secure, that whenever his shoe comes off, the unsupported, thin, brittle, outside crust, which alone has been left, will break away, and bring the horse down on to the mutilated frog and sole, now quite unfit to bear any such weight. This means, of course, that he cannot go a mile without being shod again, when his frog and sole will be again pared, his enamel rasped off, and the farrier's customers educated to believe that shoeing is a blessing of which they can never have too much, and that a horse without a farrier would be of no more use than a horse without a foot.

148.—Now, instead of acting as if convinced that nature has done everything wrong, and that we cannot too completely take the horse's foot out of her hands, we ought to look at nature's work with reverence, and to feel quite sure that there is a wise design in every part of that foot, as we see it unmutilated on the unshod colt. If it fails to bear all we require of it, it is only because we want it to work on roads which we have made unnaturally hard and grinding. If we approach the horse's foot with this feeling, our aim will rightly be to interfere as little as possible with nature. We shall remember that every nail we put into the hoof is an injury to it ; that the best iron or steel is not half so good as the tough, light, elastic horn which nature provides, and that every ounce we add to the weight of the foot requires a power to lift it equal to four hundred ounces at the loins.

149.—The farm horse, with good sound feet that can be kept constantly working in fields, is very much better without any shoes at all. He is less liable to accidents, will not injure his mates or get injured himself in turning round amongst them, or standing in the stable, or running in the field. He will never get corns, and hardly ever go lame from any cause. He will work longer and faster every day of the week, if he is not called on to lift one hundred and twenty thousand times a day, at the utmost mechanical disadvantage, an iron ring, enclosing more or less clay, mud, or dirt at the bottom of each foot. If the frog, bars, and soles of his feet have never been cut away, he will do all the carting necessary for the harvest, or manure hauling, and even bear an occasional day on the roads. The Southland teams, of six horses each, that plough five acres a day, and draw their driver behind them (20) never have any shoes to lift on their feet.

150.—For any work that makes shoeing necessary, let there be as little departure from nature as possible. If tips will do, don't use shoes, but whichever are used take care that the frog, sole, bars, and enamel are never cut away, nor the horse made so that he will not stand without shoes afterwards.

For city work, on rough paving stones, or on roads formed with very cutting flints, the common shoe may possibly be necessary ; but for all ordinary work, on ordinary roads, with unmutilated feet, light, narrow, steel tips, not exceeding two or three ounces, are very much to be preferred ; leaving the heels, bars, and frog in a state of nature. But don't try these for the first time on a horse whose frog, bars, heels, and soles have been hacked away, and then jump to the conclusion that toe tips are not a sufficient protection for a natural foot. Thousands of horses have worked well in them, and not a few which could work in no other way. They cure contraction of the feet, or the opposite mischief of a sinking centre, either of which may be caused by cutting away the frog. Corns, thrush, and sand crack, generally disappear when nothing more than tips are used, and when the frog can be got to do the work it was designed to do it will take off the strain and jar that so often ruins the sinews of the legs. Put on a sound footed young horse, whose feet have never been hacked to pieces, they will carry him, as we know from experience, over rocky mountains, and what is even worse, over long, rough, stony river beds.

That wonderfully capable and clever, though vicious hunter "Sulky," which for years carried the huntsman of the Ashburton Hunt Club over a rough stony country, and was never known to be behind either at a jump or a burst, was always shod with very light tips, generally put on by the huntsman himself. In those tremendous six feet jumps, which made that horse so celebrated amongst the daring hunters of New Zealand, he landed on the good frogs and heels which nature provided for him.

151.—Whatever kind of shoe is used, or whatever kind of work the horse is wanted to do, the one unvarying rule should be to let the centre of the foot alone, and to leave it prominent enough to take its full share of the weight of the horse. The toe may be shortened as much as it conveniently can be, but let nothing be taken from the heel if the frog can be kept prominent enough without doing so. Where tips are used it need never be touched; where long shoes are used any unequal projections must be filed off that interfere with the perfect bedding of the shoe. Rasp the bottom of the outside of the hoof until you procure a level, flat surface, as wide as the shoe or tip to be nailed on to it, and exactly fitting it, and don't interfere with any other part of the foot. Rasp no more of the sole away than may be necessary to bed your narrow tip, or shoe, and don't leave the soft sole any lower than the hard crust, but let them both take a level bearing on the straight level top of the shoe or tip. The shorter the horse's toe is kept the less likely he will be to bring his toe to the ground before his heel, and consequently to stumble, whilst anything that raises the foot off the ground, weakens the horse, and puts more strain on all his powers.

152.—The upper surface of the shoe or tip must be perfectly smooth, and the projections raised by puncturing the nail holes thoroughly filed down, but the under surface should be rounded off at the edges, as a worn hoof or worn shoe would naturally be. The shoe or tip must of course be made the right size and shape to correspond with the outside of the hoof, as the enamel of the hoof must never be cut away to make the hoof fit an unsuitable shoe.

153.—The nail holes must be bevelled through the whole thickness of the shoe, and made to exactly fit the heads of the nails, so that they will hold the shoe on until worn out. The nails should be made of the very best material, so that they may be as small, and few in number as possible. Three on the outside and two on the inside are all that should be used with a full-sized shoe. Only three nails need be used with tips. The strongest hold will be obtained near the front of the foot, and nails there cramp the foot less than they would do farther back.

154.—Smiths pride themselves upon driving these nails as far into the hoof as possible, and consequently as near as possible to the quick. To an unthinking observer, this gives an appearance of greater security to the shoe; but such appearance is entirely deceptive. The practice is an exceedingly mischievous one, besides being dangerous.

To fully understand this, we must remember that the hoof is grained like a piece of wood, with the grain running up and down, as in a tree. Nails driven in the direction of the grain have not nearly so good a hold as nails driven across it. But besides this a nail driven far up the hoof can never be securely clinched. To escape the quick at all, the last part of the nail's passage must have been very near the outside of the hoof; so that, when the nail is turned down for clinching, it is turned over a thin, weak strip of hoof, easily split out, and with the grain the wrong way to support it at all. On the other hand, when the nail is brought out within half-an-inch of the shoe, it takes a direction more across the grain of the hoof, and the point can be clinched where there is a great thickness of solid, hard hoof to rest it on. Another great advantage in this short drive into the bottom of the hoof is, that when the shoe is taken off, after a month's wear, and the toe is again rasped down, the short nail holes will be nearly rasped out, so that they will not weaken the hoof for another nailing, nor form ventilators through which to evaporate the natural moisture of the feet.

155.—With this system of drawing the nails, any strong and supple man, with common sense, can nail on a shoe without any previous experience, or without running the slightest risk of touching the very sensitive quick. None but a drunken or wantonly brutal man will ever drive a nail to the quick and leave it there, as the horse will tell them plainly enough if a nail actually touches the quick, but with the system of driving nails so high up, the quick is often pricked and the nail instantly withdrawn, or what is a great deal worse, a nail is often so close to the quick that it is painful without actually laming the horse, though it sometimes causes him to limp a day or two after being shod. This should always be carefully watched, and the first suspicious symptom attended to; but, as we have shown, there is nothing to be gained by running any risk in the matter, so that no nail should be allowed to go anywhere near the quick.

156.—Pointing the old fashioned home-made nails with a hammer, used to be the only difficult art in shoeing, but nails can now be purchased with points that require no hammering. Care should be taken to keep them bright, by keeping them from damp atmospheric influence, as the slightest rust will make them drive badly. The one-sided chisel point of these nails will bring them out of the hoof with a shorter hold than a beginner is likely to calculate on, but he will soon learn what direction to give them to get hold enough. He will find that he wants to point them more inwards at the toe than he will do near the heel, both because of the different shape of the hoof, and because whilst the horn that the nail meets at the toe is almost equally hard on both sides, and therefore effectually acts on the bevelled point, to direct the nail outwards, the horn at the heel is much softer inside than out, and consequently will not curve the chisel-pointed nail so rapidly and certainly outwards.

157.—When the nails have been driven, a slight notch may be filed in the hoof, under the point at which each nail has come out, to clinch when the nail is turned down. The clinch may be filed down almost level with the hoof, but this must be done without recklessly filing away the enamel covering of the hoof, which is of great importance to protect it from the action of either damp or drought. Far less must the hoof be rasped away to make it fit the shoe.

158.—Amongst smiths, as amongst other men, there is of course a wonderful variety of character, though the village smith is often, if not generally more than an average man. Some of them are remarkably cool, courageous, and patient ; others are just as cowardly, bad tempered, and brutal. The man who has never tried to shoe a restive, awkward horse is hardly qualified to sit in judgment on a shoeing smith, as he cannot know what a severe trial it is to a man's temper. The position is so cramped, the work so hard and particular, and the danger of getting a sharp nail drawn violently into his thigh so very manifest, that it must be an angelic temper that will not sometimes get irritable under such a combination of provocations. No man should be asked to shoe a young horse in a hurry, nor at the same price as an old one, nor without very competent assistance, and every proper appliance to prevent danger.

159.—Here, as everywhere else, there must be no uncertain fighting with your horse, no kicking or hammering, no shouting or threatening. Show the horse that he can submit without being hurt, but that submit he must.

There are many ways to secure the horses hind legs, so that he can be shod in safety to the smith, however unwilling he may be to submit to the operation. One of the simplest and best is to put on an old strong collar and hames. Then take a driving rein or long strong strap, or failing these, a piece of good half inch rope, about twelve feet long. Tie a secure loop at one end of the strap or rope and pass a strong hobble or hame strap through it, and giving it two turns, buckle the strap round one of the hind pasterns. Then bring the other end of the strap or rope under the collar and hames, and taking one turn round them draw the foot steadily up and hold it wherever required. A strong rope or strap, or breastplate, may be used instead of the collar, if more easily at hand, but the rope will not work quite so well round them. The only use of the hames is to strengthen the collar and prevent its being injured. A severe rope gag or bridle (353) may be put on and used in the horse's mouth if he will not give up his legs without much violence.

160.—The foot can now be placed in the right position for shoeing, by passing a common stirrup leather under the pastern close to the foot, and after giving it one turn round the pastern, bring the strap over the ham strings, six or eight inches from the hock, and buckle it as required. When the smith wants to get at the front of the hoof, to clinch the nails, the rope can be drawn up tighter, and the strap adjusted for that purpose.

Remember that the horse stands with difficulty on three legs, especially if very fat, and don't keep his leg up longer than necessary. If the smith has to leave him for any purpose, let the leg down, and draw it up again when he is ready. It will not be lost labour, as it all helps to make a colt more tractable.

161.—No such appliances are likely to be necessary with a colt that has been handled in its infancy, and deliberately and patiently broken, but it is far better to use them at once and systematically, when any serious resistance is offered, than to have any uncertain fighting with a colt, or to run any risk of injuring a smith, or giving the smith any provocation to abuse or illuse your colt, which might make him afraid of a smith's shop all his life afterwards.

162.—When a shoe is to be taken off it must not be violently wrenched at the risk of splitting off a large piece of hoof with it. Let the clinched ends of each nail be first turned back. Then the shoe may be carefully raised with the pincers, far enough to withdraw the nails, so that their heads may be taken hold of by the pincers and each nail separately drawn.

163.—The nails may also be drawn out, one at a time, so as not to alter the position of the tip or shoe, and a fast nail made to exactly fit the countersink in the shoe and to pass through the same hole in the hoof may be driven in its place.

In such seasons, latitudes and altitudes, that frozen icy roads may be expected to frequently alternate with unfrozen roads, Mr. Flemming's system of screwed or tightly and accurately fitting steel plugs should be adopted. The shoes should have holes at the heels and toes, and be tapped with female screws, as large as the shoe will securely bear. Short, square headed, tight fitting, steel plugs, the screws of which will not penetrate beyond the top face of the shoe, may be screwed into these holes for ordinary wear. Other steel plugs with chisel-pointed heads, must also be tightly fitted into the shoes for use in frosty weather, and a supply of them kept in the stable. Whenever the state of the roads demands it, the square-headed plugs may be screwed out, with a small hand vice, and the chisel-headed ones screwed in, and renewed as often as may be necessary. Mr. Flemming is said to have successfully accomplished the same purpose, by using unscrewed square holes, with very slight bevel, into which square accurately fitting steel plugs can be driven. A supply of these nails and screws, or steel plugs must be kept on hand, and may be put in, in a few minutes any frosty morning without having to teach your horse to skate and wait for hours at the besieged smith's forge. Horses walking on their frogs never slip so badly as those whose frogs have been destroyed.

164.—Under a growing sense that iron is too heavy and unyielding to be a suitable foundation for a horse's foot, many substitutes have been tried, and many of them are more like nature, but no one has yet succeeded in securely fastening any elastic material to the foot. Consequently all substitutes for iron or steel have been very generally abandoned. The only elastic material that can be securely and entirely relied on, is the horse's own safe and useful frog, which we have for centuries so ruthlessly and ignorantly discarded as unfit for its work.

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CHAPTER IX.

THEORY OF HORSE EDUCATION.

165.—Some forty-six years ago, we met, in Somersetshire, a Mr. Josiah Hunt, a quaker, an athlete, a man of extraordinary physical power and agility. We were told that he once saw a man stealing his geese and gave him chase. On coming up to him the thief proved a powerful man, who well understood the use of his fists, so that Mr. Hunt had to abandon his peace principles for the occasion, and to enter into a long-pitched battle with a very able opponent, before he succeeded in getting him committed to custody. After Mr. Hunt had given his evidence before the magistrate, the latter was tempted to make the impertinent remark, "I thought Mr. Hunt that Quakers did not fight;" to which Mr. Hunt instantly replied, "Let me catch thee stealing my geese, I'll tell thee if Quakers don't fight."

166.—After the goose stealer had been committed to prison, Mr. Hunt's mother, who was a local Elizabeth Fry, undertook to visit him, expecting to find as tough a subject in her line as her son had found in his. But the moment she opened her soft fire on the criminal he began to weep, and said, "I would rather fight your son than talk to you."

167.—Mr. Hunt had attacked the pugilist with his own weapons, and only succeeded because he was the stronger man. Mrs. Hunt attacked him with weapons that he was wholly unprepared to resist, and found him helpless as an infant.

168.—The horse's natural defence is kicking and striking. He has few equals in that line, and no man could compete with him for a moment. If you strike him it is quite natural that he should strike you. He quite understands that business ; nothing else you could have done would have been so much in his line ; and you have foolishly provoked a battle in which you must be worsted.

169.—Meet him on the other hand with mechanical appliances, about which nature has given him not the slightest idea, and he no longer thinks of resistance. He has nothing to oppose to you; he is a piece of clay in your hands ; and you stand before him no longer on equal terms, but as a superior being ; an omnipotent master, whose will he will obey directly you can make him understand what that will is.

170.—This is the great central truth that you must never forget in your dealings with the horse. Never meet him on his own ground ; never enter into a physical contest with him ; never run after him ; never exhibit any brutal temper ; never give him blow for blow, nor push for push, nor pull for pull. Avoid every contest in which you must, or even may be beaten, and the horse will soon learn to look upon you as omnipotent, and will never think of measuring any of his powers against yours.

171.—If our readers will only keep this great principle constantly in mind, in everything they do with a young horse, they will certainly succeed. The details we may give may be varied in a hundred different ways, but this essential principle must never be departed from.

172.—The modest opinion that the horse can so readily be got to entertain of his own power is a most convenient feature in his character until we come to want to give him confidence at pulling in the collar, and then it becomes our great difficulty. But this is a subject of such great practical importance that it must be fully treated of in a separate chapter, before we can understand the subject of breaking to harness.

173.—The man who undertakes to educate a horse labours under some disadvantages that do not arise in the education of a child. A tutor is commonly supposed to be the superior of his pupil physically, mentally, and morally, and generally has the immense advantage of using a language common to both. The teacher of the horse knows nothing of his language, if he has one, whilst he has to deal with an animal far surpassing him in physical power, and whose special senses are all more efficient than his own. The ear of the horse catches sounds too faint or too distant to be heard by man ; his eyes enable him to gallop on a track that his rider could hardly see on his hands and knees, or to travel safely in the darkness of night. His taste and smell direct him unerringly in the choice of herbage, or in the rejection of water from a contaminated vessel, whilst his sensitive muzzle is the oracle he appeals to, as superior to all his other powerful senses, in deciding upon the danger or safety of any suspected object.

174.—In memory of a road once travelled, in finding a far-distant home through a trackless wilderness, or in reading the concealed intentions of a would-be captor, the horse has some perceptions superior to man. But whilst in physical power and special senses man stands a pigmy by the side of the equine giant; in reasoning power, he is the all powerful giant by the side of an insignificant pigmy, and is called on to deal with an animal so entirely in his power as to demand all the compassion, gentleness, and forbearance that a noble nature is so anxious to extend to any helpless object that has no means of resistance; no hope of a defender.

175.—With so much physical inferiority and so much mental preponderance, the policy of the horse trainer should evidently be to avoid any approach to a physical conflict, and to meet his pupils' superior strength with the irresistable appliances of reason. With good judgment and sufficient caution, it is in fact wonderfully easy to give such a simple animal the impression that he has no power to resist your will; but if once you allow him to provoke you into a trial of strength against strength, in which he is sure to succeed, the spell is broken and you have lost an advantage which you can never again completely recover. The horse that has once pulled at one end of a rope whilst you pulled at the other, and has thus discovered that you are nobody in such a contest, or that has shown you his heels, and seen how fast you fly from them, has learned a lesson that he will never forget; and will never be made quite so gentle and obedient as one which has never acquired that piece of information.

176.—On the other hand, if he has ever been severely hurt in his first contact with man and his appliances; has been whipped, spurred, galled, had his jaw wrenched, kicked his legs to pieces, or has turned a somersault with a lounging line, a tether rope, or harness, he will always associate such objects with pain ; all his strong natural fears will be confirmed, and may, at any time after, be exhibited in the most unsuspected and dangerous manner.

177.—The time and money spent in the education of different horses, under widely differing circumstances, varies almost as much as that which was spent respectively on Sam Weller and the Prince of Wales ; but the object that must be aimed at with all is to make the horse believe that he has no power to resist the will of man, and that he may submit to him without being hurt. The latter is by far the most difficult part of the lesson. With at least nine horses out of ten their fear is the only thing that you will have any difficulty in getting over. Once convince them that you are not going to hurt them, and you take away the danger of any frantic movements likely to hurt you. The horse is neither a vindictive, an obstinate, a sulky, an insensible, or a lazy animal ; although careless observers have put him down for all these, and under that fatal mistake have adopted practices only calculated to ruin an animal whose besetting weakness is fear. We have seen a horse, in his first lessons, whealed from head to foot by a brutal man without offering to move ; although the same horse a month afterwards would run himself to death rather than be touched with a whip. When first brought into the clutches of man, and made to feel that escape is hopeless, the most timid and sensitive wild horses are prone to be paralysed, like a victim in the claws of a lion, and in that state will take no notice of being torn or cut to pieces. The man who would whip a horse in that pitiable condition should never be allowed to have any animal in his power.

We cannot pretend to explain all the strange action, or want of action, we sometimes witness in our first contact with a young horse.

We have seen a few cases of even handled pets, who could not have been paralysed with fear, who could not move at all with anything on them that controlled the direction of their movements. We have even seen them stand stock still, for nearly half-an-hour, after everything was taken off them, evidently under the impression that they could not move. We are wholly unconscious of the nature of the instincts which appear thus to paralyse the regulated motions of some colts. A state of paralysis which is commonly treated as obstinacy or sulkiness, but which is more apt to be exhibited by amimals the farthest removed from any such tendencies, and by animals that afterwards move with the utmost promptness for the most gentle indication. We have tried our utmost to discover the cause of this unfortunate propensity, but have never succeeded. All that we know about it is, that the more patiently and soothingly it is treated the more completely it disappears; and that harsh treatment will render the horse liable to similar fits all through his after life. Most unbroken horses will move on when whipped, but many will not, and it is a great mistake to suppose that a horse necessarily knows that he is resisting your will because he does not fly from your whip.

178.—Besides the evidence of sacred history that the horse probably originated in Africa, there is abundant evidence in the nature of the horse itself, that he is an animal originating in some country abounding in serpents and beasts of prey, powerful and agile enough to require his constant vigilance. The mad terror with which he flies from a dragging tether rope, the wide birth he likes to give to every log, the distance he will keep from a fur rug, the frantic exhausting plunges he will make under the first animal or even object that alights on his back, the extreme nervousness with which he receives the slightest prick, such as might be given by the sharp claw of a beast of prey, all show that nature has endowed him with a watchful timidity adapted to move amidst dangers which have no existence amongst us, which keeps him constantly on the alert, and subjects him to many sudden impulses which are very difficult for us to understand.

179.—With such evidences of the horse's real nature constantly before us, we cannot rate that man's intelligence very high who tells us that the fears of the shying horse are all shams adopted to unseat his rider, or to turn him over in a vehicle.

It is quite true that constant hard work in the open air will banish a great deal of nervous timidity from man, woman, or horse, but that does not prove that it never existed, or that its possessor deserved to be tortured more than he was naturally tortured, by the wretched feeling itself. Any experienced traveller on horseback must have noticed the awe and reluctance with which even an old horse enters a forest tract, the depressed spirits with which he passes through it, and the animation he recovers as soon as he can see his way out of it.

180.—There is too, a proneness to martyrdom about some horses that no one can account for, and which often subjects them to fearful torture. They will jump from the mere threat or touch of a whip, but will not move for a severe application of it ; they will fly for the prick of a light spur, but will not move for a dagger or a burn. Extremely sensitive to the slightest touch, severe pain has probably some paralizing effect upon them.

181.—The instructor of the young horse should bring to his work great natural qualifications. He need know little of English, and nothing of Latin or Greek, but he should possess all that fondness for his work and that interest in each pupil, that patience and good temper, that insight into each character, and the best way to meet its peculiarities, found in the first-class instructor of children, and he needs besides the highest order of courage, and a certain, indefinable, mesmeric perception and influence, which supplies the place of language between him and the horse, and without which no man is ever very successful with them. The courage wanted is the very opposite of the blustering aggressiveness and reckless blindness to all danger that is sometimes called by that name. It is quick to see real danger, to anticipate and provide for it, but when it comes it sharpens and does not drive away the wits, and there must be none of that selfish fear of his own skin which makes a man always so ready to secure himself at any cost to others, to suspect bad intentions where none exist, and to be needlessly cruel because he cannot be calmly just. Such fear is more contagious than the small pox, and is quite fatal to any beneficial intercourse between man and horse. Under its influence they will be perpetually alarming each other, and the horse will wildly plunge from side to side at an object that he would have passed quietly enough with a calmer man upon his back.

182.—Rarey has done much for the horse by showing the most expeditious method of reconciling him to all the objects of his groundless fears. We are quite ready to admit that Rarey's system is not the best possible system under which a horse can be educated, nor one that we would adopt with a very valuable horse in a country where good men can be got at reasonable wages to handle him.

But, like cheap engravings, his system is a boon to the millions, and a moderately humane way to make millions of horses useful upon whose education much time or money will never be spent. Where the total value of a horse is less than the wages of a man for a week, nothing will induce his owners to employ a man for a month to prepare him for market. In such circumstances we must seek for cheap and expeditious methods, making them at the same time as efficient and humane as we can. We have broken horses that cost five hundred pounds each, we have broken others, eight of which were bought for five pounds. However much we may determine to treat them all humanely, no one could be expected to spend an equal amount of time and trouble on their education. The one will be treated as princes the other as Sam Wellers.

CHAPTER X.

BREAKING A HORSE SLOWLY AND THOROUGHLY.

183.—In England the education of a horse often and wisely begins on the first day of its existence. The little long legged animal is brought into a loose box with its mother, and if not actually haltered and taught to lead, is gently handled from head to foot, which has a great effect in making it ever after fearless of the approach of man. The more often this is repeated the better. When two or three months old it is often fed from a manger with its mother, and frequent opportunities taken to handle it. It is sometimes shut up in a loose box during the forced absence of its mother, and at others follows her through the roads, over the bridges, and amongst the sights and scenes of its future life.

184.—At weaning time, if not already done, it is often subjected to the important lesson of being tied up. A strong wide smooth leather halter is quietly, cautiously, and securely fixed on its head. It is placed in a stall and fed from a manger. Some door, gate, hurdle, or slip bar is closed behind it so that it cannot run back far. Then a rope is tied to each side of the stall sufficiently loose to allow the colt to feed freely, but not long enough to allow it to turn round. As it cannot get far backwards or forwards it will first feel the restraint of the rope sideways, in which direction it can exert but little power and can hardly hurt itself. In this position it may be tied for two hours or more, on several days in succession, when, if it has been well managed so that it has neither broken away nor hurt itself, it will have come to the conclusion that it cannot break anything that it is tied with, and will not try, however weak the line by which it may afterwards be fastened.

185.—At two years old it may be brought in, and after being shut in a loose box or some secure enclosure, until reconciled to the absence of its companions, it may be tied up again with the same precautions as at first (184). After being thus well accustomed to the restraint of the common leather halter, it should have a nicely fitting cavesson adjusted to its head, with the noseband low enough to give some power over the colt's movements, but not low enough to interfere with his breathing, or to press painfully on the soft cartilages of the nose. If the colt has not been taught to lead, it may then be driven into a well-fenced yard or large enclosure. There a long soft line of web or leather may be attached to the front ring on the cavesson, and the colt be started to move round you where the fences will prevent his pulling away from you, and enforce obedience to your pull on the cavesson. When made obedient to the cavesson on both sides, put on a bridle, or attach a bit to the cavesson. Whatever bit is used, it should be large and very smooth, and have large guards at the side, so that it cannot be drawn through its mouth. After a little lounging on both sides with the bit and a little time to freely play with the bit in its mouth, it may be put into the stall, with its hind quarters to the manger, and the bit fastened to the post on each side of the stall, at the natural level of the head, so that it can only move its head a few inches either way without being restrained by the bit. An hour at a time on three successive days will be long enough for this, as in that time the colt will be under the firm conviction that it cannot resist a pull on either side of its mouth, or go forward against the bit; a delusion you must take care not to dispel by any after handling.

186.—After these lessons in the stall, take the colt into a shed, or large enclosure of any kind, and get it to walk round you. Hold it first by the rein fastened to the left side of the bit, by which you give the colt a side pull before he reaches a corner, and turn him round towards you. Try how little force will fetch him round, and use no more, but firmly bring him round at any rate. After a little practice on that side, buckle the line on the right side of the bit, and walk him round in the other direction, guiding him as before. It does not matter what pace he goes, the object of the lesson is to keep up the delusion that he must yield to a pull on either side, where the walls will enforce the lesson, and give him no chance to pull effectually against you. An hour of this will be quite enough, after which go to his head and rub it all over with your hands, going gently over the eyes and ears until he makes no objection to such handling. If he seems at all suspicious about it, spend a good deal of time to gain his confidence; rub the corners of his eyes and the roots of his ears again and again, until he is quite reconciled to the process. Then take a wisp of straw, and, letting him first touch it with his muzzle, rub the head gently with that, working back down his neck and fore legs and over his shoulders and back. Take his hind quarters cautiously, holding the rein in your left hand, and keeping an eye on his ears, and on the hind leg that is not carrying the weight of the body, as he cannot kick you with the other until he has shifted it. There is rarely any difficulty about all this with the early handled colt, but if there is any disposition to kick, or any strong objection to be handled in any part, this will be the proper time and place to deal with that frailty with safety to the colt and to yourself, and the lesson will not be without good effect in making the colt more submissive in all his following lessons.

187.—Strap up one of his fore legs (353), and then go back to his hind quarters and wisp them all over, going down the hind legs and handling his feet, lifting his tail, and reconciling him to be touched in every part; showing him, in fact, that your touching him and rubbing him in any part will not hurt him. If the foot has been strapped up without much difficulty, and the colt is not very restive, don't keep him on three legs more than ten minutes, but let the foot down and take up the other one. The more frequently this is done the more easily it will be found to yield to the process, and it makes the colt more tractable for shoeing, and many other purposes. If there has been much difficulty in getting the foot up it may be kept up a little longer. In this you must be guided by the weight and hard or soft condition of the colt. Ponies with no surplus flesh, and in hard condition will hop a mile, or stand an hour on three legs, but a heavy, soft, fat horse will sometimes lie down rather than stand on three legs for five minutes. There is no harm in the lying down if the place is suitable, but there must be a great, strain on the muscles to compel a colt to do so. After the wisping get a piece of cloth or sacking about two feet square, and after taking it to the colt's muzzle, rub it over his head and body. Then beat him with it as with a duster, at first gently, but getting harder and harder until he will allow you to swing it round forcibly and bring it rapidly down on any part of his body or legs. This he will submit to in a few minutes, and you will find it save a lot of time and trouble in all your future handling. A colt that has been well dusted, and completely gentled by this operation, will usually loose all fear and nervousness about articles being put suddenly on him, so that he will allow a saddle or other harness to be flung on his back without any warning, and will not jump away from a sudden approach.

188.—The colt being thus entirely reconciled to your close proximity, so that you can freely and even hastily tumble against him without danger to yourself or alarm to him, can now be taught the important lesson of leading freely and well. Take the rein in your left hand, so that your right hand is free to place on his head and neck, to push the colt gently away from you if necessary. Take him at first round a yard or large shed, where the fences will secure him, and enforce obedience to your rein. Encourage him to step out freely by your side, and to yield to a gentle side pull on the halter. Use no violence, have no pulling matches with him, never get before him or attempt to pull him along, or you will soon spoil him for leading. If you cannot coax him into a free bold step, take a long gig whip, and gathering the rope up in your right hand, take hold of the leather halter round his head, so that you can either push or pull him. Drag the whip behind you with your left hand, so that you can touch his hind quarters with the thong, without his understanding that you are the operator. This will soon give him the habit of stepping freely when led, though it requires to be done skilfully and judiciously, without any appearance of turning round to attack the colt, or destroying his confidence in you, which would be quite fatal to good leading.

189.—The next day's lesson may be to teach the colt to bear something tightly girthed round it, and to be reconciled to articles fastened on its back. A surcingle is the most convenient thing for the first lesson. It need not be ornamental, but may be simply a plain leather strap, three or four inches wide, with a ring on each side of the colt, and one at the bottom. It should fasten round the colt with double buckles and buckle straps.

Put on gently and tighten moderately by degrees. Then walk the colt round and see if it has any disposition to try and throw it off, and if it has let it try its best. If it has not, tie on a pocket handkerchief, or some small waving article, and try the effect of that. As soon as it is quite reconciled to one article try another, until it carries them with indifference Take care that nothing is put on so that the colt can throw it off, or that can possibly hurt him. Don't forget the precaution to let him touch everything with his muzzle before you put it on his back.

190.—One lesson that may take a good deal of time with a young horse, and especially with a young mare, is allowing articles of any kind to be placed between its tail and its body. First put on a common crupper, and fasten it moderately tight to the surcingle. The fore leg may be strapped up (353) if necessary for this purpose, and be let down again as soon as all is secure. Let the colt move round you, and you will soon see if it is going to be ticklish about its tail. If it kicks let it kick as long as it will, and when it will not kick any longer slacken the crupper, so that it will drop three inches down its tail, and try the colt round at that. When it will no longer kick at a tight or slack crupper, tie a piece of stout string as long as your lounging line to the crupper, midway between the tail and the surcingle, and taking the loose end of the string in your hand tighten and slacken the crupper with it as the colt passes round you. When reconciled to this strap up a fore leg, and take off the crupper. Fold and secure a large duster or some such fabric round it so as to make the part that goes under the tail three or four inches in diameter. Then put the crupper on again and try the colt round with it. If it kicks keep it going until it will kick no longer. See that it is not too tight, and that there is nothing about it to make the very tender skin under the tail sore, so that it may be kept on several days and nights if necessary. It will have a greater effect and be less likely to produce any soreness or tenderness, if the material under the tail, as well as its size and position, are varied every day. The crupper can be shortened and lengthened so as to touch different parts of the colt's tail. On the second day a piece of woolly sheep skin may take the place of the duster, on the third a hay band, on the fourth a loose cloth or a wide piece of leather or sacking, and thus continue something new until the colt will take no notice of any harmless thing, and will not pinch any of them when placed under his tail.

191.—You may now try a riding saddle without stirrups. Put it first on the usual part of the back, keeping hold of it, and shifting it backwards and forwards until the colt makes no objection to it on any part. Then put it in the right place, and adjusting a surcingle round it girth it on securely. Fasten every description of clothing on the saddle until the colt appears reconciled to every article of dress you can think of. Lead him quietly at first, and then try the effect of a trot, or any faster pace, whilst he is secured both by walls and a lounging line, as a colt will often carry clothes or other articles at a slow pace which will alarm him in a faster pace.

192.—When quite quiet at leading or lounging, put on reins, and drive the colt about with them, first in the shed or yard, and then outside. The first drive with reins, walking behind a colt, requires quick sight, quick movement, and some common sense. We have seen persons put the reins on a colt for the first time, passing them through rings, fixed in the harness, saddle, or surcingle, as they would do with an old horse that was to be fixed between shafts. The result of this usually is that the first time the colt makes a short turn round, the would be driver finds himself without any reins at all, and the colt awkwardly entangled, or running away in a fright. Reins should not be tried at all until the colt is likely to go quietly, and to guide to them, and then of course they should be passed through no fixtures, and nothing must intervene between your hand and the colt's mouth, and turn as he will you must keep behind him. Until you know that the colt will guide fairly well to the reins, do not let him out of a good yard, or some place where he cannot get away from you. Besides the certainty of losing your reins by passing them through rings, &c., you lose the power to give a side rather than a back pull at first, which is a very essential point in teaching a colt to guide pleasantly to reins (198). When the reins are simply tied to the colt's bit, on each side, you have always the power, in case of any entanglement, to drop one of them, and to use the other as a lounging line. Use the reins gently and teach the colt to guide, turn, and stop with them, repeating at the same time the words that you wish him to attend to when on his back.

193.—Some colts will take whatever you put on them quietly, indeed most colts will do so after a good dusting (187), whilst others will want time to get reconciled to each new article. Give whatever time is necessary and reconcile him to everything you can think of before he is mounted.

It is far better, both for horse and rider, that his first alarms and most violent efforts should be directed against empty clothes or light and inanimate objects. A desire to show off his riding, or to "fight it out" with a colt, is one of the worst errors a horse breaker can fall into. Too many persons labour under the delusion that a colt is the better to try his best to throw his first rider, so long as he does not succeed. This is a great mistake, even if we could be quite sure that he would not succeed, which we never can be. We have seen one colt throw successively three of the best riders in the world, though the same colt was completely tamed by letting him try three days in a field to throw off a common cart saddle, well secured with girths and crupper. Plunging and bucking with a man on his back is very liable to injure any horse, and especially a two year old colt. But apart from all danger to man and horse it is not only useless but very mischievous to unnecessarily enter upon any such encounters. No horse is so well broken as the horse which has never tried to throw a living rider, which has never pulled on a bridle or halter and never refused to pull in a collar.

Prevention is better and more easy than any cure, and in 99 cases out of 100 prevention is possible, and perfect cure impossible.

194.—When the colt has been made really ready for mounting, his breaker will have learned a great deal of what his temper is, and will be able to judge what precautions will be necessary in getting on his back.

There are many different ways of going to work, and the experienced breaker will choose the one most suited to the temper and disposition of his pupil. Available convenience too will vary greatly: a common stall, an empty barn well littered, a ploughed field, or even a grass paddock may be used, but we like nothing better than a good sized high loose box, with a clay floor, and some well trodden short litter upon it.

195.—An empty box about eighteen inches square makes a good mounting block. Let the colt touch it with his muzzle and closely examine it as long as he pleases. Then place it near his left fore leg and step quietly on to it. Pat the colt on the back, and give him plenty of time to take stock of you at that elevation. Then get off the box and mount again repeatedly. Then standing on the box reach your hands over and pat him down the right side. Lean first a little and then all your weight on him, gently repeating anything that alarms him until he is quite reconciled to it. If he is still nervous about your proceedings, get the duster (187) and give him another good rough dusting. This never does any harm, and it usually has a wonderful effect in removing all fear of your future movements upon him. With your hands lean your weight first in one stirrup and then in the other. Then put your left foot in the left stirrup and stand in it, getting up and down repeatedly Thus deliberately feeling your way at every stage get gently on his back. Pat him on the neck and shoulders and speak to him in a calm soothing voice. Get on and off repeatedly. If you have got on so far without ruffling your own or the horse's temper, you may take away the box, and practice getting on and off as long as he appears at all nervous about it, and get him thoroughly reconciled to this important part of his future business, however long it may take, before you attempt to proceed farther.

196.—There are few things more difficult to teach a lively horse than that he is not wanted to rush on the moment you begin getting on his back, and if he is allowed to do so at first, he is hardly ever cured of it, so that it is worth spending a good deal of time with a valuable horse to teach him to stand quietly to be mounted without holding. One single hasty act at the first stages may make it impossible to attain the quiet, unsuspicious standing that adds so much to the pleasantness and value of a riding horse. We would here impress upon the horse tamer the importance of doing nothing at this stage if he at any time feels that he has lost his own calmness and temper.

The young horse will know it by his face, by his touch, and especially by his voice, and he cannot be deceived. Go away at once and come back to your work when you are fit for it.

197.—When the colt has been taught to let you mount him without any nervousness or impatience, take him out into the yard or shed where you have been leading him, and mount him there, letting him stand still with you or walk as he pleases. If he stands still five minutes after you have mounted him so much the better, but very few, if any, colts will do that. If at any time you want to start him, don't touch him with your heel, or do anything to send him off with a rush, but pull him gently to one side with a horizontal rein. If he is restive and does not guide to the rein, you have mounted him too soon ; get off as soon as you can, without any fighting, and give him more discipline where he must submit. If he walks about quietly with you, take a few turns round the yard or shed, and then get off his back and lead him, or drive him with reins a mile away from home, and there get on him and ride him home at a walking pace. Be sure that you do not at first attempt to ride him away from his home, his stable, his company, or any strong attraction, as it may lead to a fight in which you may not be master. If such a fight is carefully avoided at first it will not take place after he has learned to thoroughly understand all your signals, and acquires, as he soon will, the impression that he must obey them.

198.—When you first mount a colt, do not be so absurdly unreasonable as to expect him to guide by signals that he has never been taught, such as the pressure of a rein on the neck, or even by a straight back pull on either of the reins, but imitate as nearly as you can the signals he has been taught whilst you were at his side, and still more forcibly when each side rein was fastened to a post. Draw him to either side by a pull on the rein of that side, holding your hand well out from your body so as to give the pull as much side direction as you can. Remember that your object is to keep up the delusion that he can no more resist your pull now you are on his back than he could the pull on the straps that first fixed him to the stall posts. He will quite expect to obey what he still believes to be the irresistible side pull. if you do not frighten him out of his senses with some new object of alarm, or commence before the delusion is established, to resist him on some very strong natural instinct. When the habit of yielding to a touch of the rein has been well established he will instinctively obey it even under excitement, just as a long trained soldier can hardly help obeying the word of command in the excitement of a battle, which would drive his half learned lesson out of the memory of a recruit. Until the habit of yielding to a touch of the rein has become a part of the horse's impulsive nature, strong excitement will make him forget it, and one act of successful disobedience, though accidental, may entirely destroy the delusion that he is obliged to obey the rein, and thus make him a less obedient animal for the rest of his life.

199.—This awkward looking side pull will not have to be continued long. The colt's sensitive mouth and active temperament will soon begin to notice the slightest touch in that direction, and will not wait for the completion of the side pull signal, just as the carriage horse will not wait for you to take the reins in your hand and give him the order to move, but will move on the moment you put your foot on the step of the carriage.

With a few hours gentle, patient practice, the colt will guide with the slightest touch of the rein, stop for a barely perceptible pull, and pick up the meaning of any side pressure on his neck, or his side, or any other distinct signals with which you constantly accompany those he understands.

200.—The care, consistency, and gentleness that the breaker exercises at this stage. will make the difference between a good and a bad mouth, between the horse that could be ridden with a pack thread, and one that will require two leather reins and a jaw breaking bit to steer and restrain him. There is a very great natural difference in horses in this respect. Some will never bear jerking and tucking about with a rough hand, others will get to bear more and more of it, until they will allow a clumsy rider to hang on to their mouths with a snaffle bit, to raise himself in the saddle, without stopping or taking any notice of it ; or will bear a wrench with a curb chain and iron lever, that would make a more irritable horse stand on his hind legs. But there are very few well bred and well formed horses that with light handling at first will not learn to have light pleasant mouths ; indeed we have never met with one.

201.—Most horses can easily be taught to go any pace and to guide, stop, or turn without touching the reins at all. They will take all their signals from the rider's legs and the way he sits or turns his own body. Indeed. the great majority of horses long ridden by one even tempered, unfickle man, will learn to do this whether you wish them to or not, will start off at a gallop the moment you put yourself in a position for it, canter if you sit right for that. trot directly you put more weight in the stirrups. walk whilst you sit loose and easy, stop the moment you throw your foot out of the right stirrup, and turn to either side if you turn yourself, drawing one leg a little back and the other forward. This is the whole secret of the sudden and effectual manner in which the Arabs can gallop, stop, turn, or steer their horses, with nothing on their heads but a single reined bitless halter, and with neither stirrups nor spurs : whilst our supposed skilful English officers tell us that after purchasing the same horses they find them headlong and impetuous, and that they cannot so completely control and suddenly stop them. with the most powerful bits.

202.—It is amusing to read the accounts which English officers have given of this (to them) surprising fact. and the reasons they gravely assign for it. Such writers have evidently not attended to the illustrations they might have observed, or experienced, of the mesmeric language that may be established between a horse and his constant rider, and have not discovered how much more complete his education can be made without than with the usual instruments of torture. In less than one year's careful training, with only the one rider, the ordinary English thoroughbred horse will learn to go through all such evolutions to perfection, and keep in good temper over it too, which he would not do with a sharp bit and spurs. So that we need not wonder that the Arab who rides the same horse every day during their mutual lives, and eats, drinks, and sleeps with it, can teach it to read all his dumb signals as certainly as an observant wife can read all the dumb motions that indicate her husband's wants.

203.—There is nothing that the Arab teaches his horse that an Englishman could not teach an English horse if he treated him more as a friend and companion.

A New Zealand Maori woman is by no means superior to an English lady, but whilst the English lady believes a pig to be the most stupid and filthy of animals, the Maori woman who has taken to suckle a young pig as a substitute for her lost baby, discovers that the animal is so cleanly in its habits that it can be kept in a drawing room, so tractable that it will walk about a flower garden without stepping on a border, and so clever that it can be taught to beat its mistress at a game at cards. The Australian squatters who import the best collie dogs that money can procure from Scotland, and keep scores of the poor brutes on the chain, as the mere chattels of their extensive estates, never have a dog to equal the one faithful day and night companion of the poor mountain shepherd and his family.

> "Love, and love only, is the boon for love ;
> All like the purchase, few the price will pay,
> And this makes friends such miracles on earth."

204.—But although horses trained to bound off or stop suddenly, at some short hand signal, are delightful horses to their first and only rider, and enable him to perform wonders on horseback which other persons cannot understand, they are often pronounced vicious dangerous brutes by the first stranger who gets on them, and goes over their head at the first unexpected stop, or over their tail at the first sudden bound forward. The too eager and willing slave that has only been doing what he has been taught by a better, and better loved master, now comes in for torrents of abuse, whip and spur, for daring to stop, bound, turn, and guide for signals which his new master does not understand. Of course, such teachable horses can soon be made dangerous by such illtreatment, but if their new owners only had the sense and patience to investigate the cause of movements they do not comprehend, such tractable animals might soon be made to learn any new set of signals and to become almost equally valuable to their new owners.

205.—Such teaching, however, disqualifies a horse for a constant change of riders, and, therefore, unless you are training a horse for your own riding exclusively, all such refinements in his education are best avoided. It will often be only training a gentle Uncle Tom for some brutal Legree to cut to pieces for his very virtues.

206.—There are, however, a large proportion of riders, and even drivers, who appreciate a fine sensitive mouth, and enjoy using only that delicate touch which is essential to its preservation. This is a qualification demanded by the refined as distinguished from the vulgar horseman, so that the value and destiny of the horse will often depend much upon it. The most beautiful sight in Rotten Row is a pair of well bred handsome horses, full of health, life, and spirits, willing to trot at any pace, without a touch from the merely ornamental whip, yet held in even under excitement, by a lady's hand, without an effort, and without imparting a lean to the graceful figure of their driver. It is this perfection of mouth that every teacher should endeavour to obtain in a light horse, and it can only be maintained by careful gentle handling of the sensitive mouth from the first.

Indeed, such a mouth, combined with such free motion, such courage, confidence, and cheerful spirit, is the surest indication that the horse has been well handled from first to last.

207.—So far as we have yet gone with the education of the colt there has been little or no need for either whip or spur. The main business has been to gain the colt's confidence, and to show him that he will not necessarily be hurt by the closest and most intimate contact with man. In our future dealings with him, it may sometimes be necessary to meet fear with fear, and to appeal to his ever present apprehension to drive him past a multitude of dreaded objects, and to bring out his best powers in our service. For this purpose the breaker had better now be armed with both whip and spurs, provided, of course, that he has temper and skill enough to avoid any senseless, passionate, or accidental abuse of them.

208.—Left to his own instincts, our two-year-old horse, that has just been taught to carry a man with some confidence on his back, would never go along a road at any steady pace. He would gallop a short distance with his nose near the ground, then raising his head high, would slacken his pace to a walk, get as far as he could to one side of the road, stop and have a good look at some object of alarm, start and stop again repeatedly, until the suspicious object is passed, and then bound off at a gallop again. In the service of man all this has to be altered. He must be taught no longer to play the part of a timid idle fugitive, but to lend his physical powers to carry the lord of the creation wherever and however he pleases, regardless of a thousand objects which his apprehensive nature prompts him to shun.

209.—This is a very hard lesson for so timid and impulsive an animal to learn; but fortunately it can be made far more easy and agreeable to him by calling in the aid of his strong gregarious instinct, and giving him a companion which has learned to scorn the objects of his juvenile fears. In the next lessons, he should be ridden in company with a bold, well-broken, and well-ridden horse, and one that can walk fast, as that is the first pace for any riding horse to learn, and the only pace that a two-year-old horse should be ridden at. A fast, steady, safe walk adds much to the value of any riding horse, and the longer a colt is kept at it, before he is allowed to carry a rider at any other pace, the better and faster he will be likely to walk. It is the pace at which a horse requires more urging than any other. The racehorse that pulls hard on the bridle at a gallop, will often require a frequent touch with the spur to keep him up to a good fast walk, and the colt is still more likely to require it to admonish him that he must not stop to stare at all the strange objects he passes.

210.—There are many reasons why the spur is preferable to the whip for this purpose. In the first place it is far more effectual: it comes without warning, and the horse cannot watch it, or swerve from it, as from a whip. In the second place the whip, at this stage of the colt's education, should be used as a guiding monitor rather than as an instrument of punishment, and, for many obvious reasons, the colt is best not to feel much of it. Thirdly, the spur, though more dreaded by the colt, inflicts far less pain upon him. The most superficial prick answers the purpose far better than anything more (180), and even the deepest prick that a properly made spur would inflict would not carry so much future pain as a whip used hard enough to produce a weal.

211.—With so many new objects about him, the colt, like a child, will be very apt to be inattentive to some of the signals he has learned, and the light whip must be at hand to instantly call his attention to his negligence. No inattention to any rein signal must be allowed to pass unnoticed, at this stage, or the fine mouth may be lost. There must be no heavy long-continued dragging, far less any jerking at the reins, or the mouth will certainly be spoiled. If the colt does not instantly answer to a slight pull of the rein to one side, accompanied by a barely perceptible turn of your body and legs in the direction you wish him to turn, let a gentle tap of the whip on the opposite side be immediately added to move him in the right direction. The touch should be one that will not hurt him in the least; the object is not to punish but to arouse his attention just as you would touch or tap the shoulder, rather than raise your voice to a child, who was looking at something else whilst you were speaking to him. A hard stroke would not even answer the purpose, but would be far more likely to provoke a fight and produce a result the opposite to that desired. One tap is almost always enough, but if not the light taps may be repeated until they are attended to. Thus using the spur as lightly as possible to keep the colt walking steadily on at a good pace, and the whip to enforce attention to any neglected rein signal, keep him some times on one side and some times on the other of the old horse, generally putting the old horse between the colt and any serious object of alarm. You must be very careful not to let him acquire a habit of paying more attention to the rein on one side than the other, a habit that is soon formed, and one that is quite fatal to pleasant riding or driving.

212.—After the first or second hour's riding, the experienced horseman should be able to judge whether the colt will ever be fit for a saddle horse or not. If he brings his toes to the ground before his heels, or cannot put his fore leg well forward, he will never make a safe saddle horse, and should at once be consigned to harness. All the pages that have been written about teaching a young horse to step, by practising him over large turnips, or uneven ground, are on a par with those that used to be written about keeping a horse from falling down by reining him up, or supporting his head with his tail. If a horse's legs and shoulders are so formed that he can put his leg before him, with the heel down first, he will always do it, and will always be safe, if they are not so formed he cannot do it, and he will stumble in consequence. It is a mere question of the length, strength, and direction of a complicated set of ropes and pulleys, which are quite out of your reach. Below the knee the horse has no muscles, nothing but bones and sinews, worked from the powerful muscles above ; and you might as well expect to improve the action of a steam engine by working it over a rough turnip field as to improve that of the horse. No man ever saw a stumbling horse made a safe one yet, unless the stumbling resulted from weakness, or was the consequence of a mis-shaped hoof or shoe, which could of course be altered. You may whip and spur and curb him, and make him lift his legs higher as long as you excite his fears, and no longer, but that will not make him put his feet down the right way, nor prevent his falling, even whilst you are giving your worse than useless lessons. If on the other hand the colt's action is too high, or from any cause rough and unpleasant, it will only get rougher and more unpleasant with age, and harness should be his destination. A racehorse may be utterly unfit for a gentleman to ride and yet make a valuable gambling machine, but any other saddle horse should be safe and pleasant in his paces, and where so many are required for harness, and so few for the saddle, it is not worth while to train anything for the saddle that is not naturally fitted for it.

213.—If it is discovered that the colt will only be fit for harness, or if it is intended to teach him to go in harness as well as saddle, it will be more easy to put him in harness at once than to put the finishing strokes on his education as a saddle horse ; because in harness a well-trained companion can take him certainly and harmlessly through any sights or sounds, and leave him no option about complete obedience.

In bygone days it was considered derogatory and injurious to a riding horse to have ever been in harness ; but so many advantages arise from it when very carefully done, that the most perfect saddle horses are now often good light harness horses as well, and can thus get plenty of daily exercise without always carrying an injurious weight on their legs. Such horses must never get a collar mark on their shoulders, nor a punishing bit in their mouths, nor a rough-handed coachman at their reins ; nor should they habitually have very much weight behind them. But their treatment in harness will properly come under, breaking to light harness, and we will now go on with the education of the colt on the supposition that it is to be broken to saddle only.

214.—While the principal object at this stage is to keep the colt up to the habit of a fast steady walk, and instant attention to the most gentle touch of the rein ; time is often well spent in letting him examine closely and exhaustively any common objects that alarm him, when you have an opportunity to do so. It is generally best to get off and lead him up to them, encouraging him to touch them with his muzzle, after which he will generally take no further notice of them. If the object is a moving one, such as a roller, a wheelbarrow, or a bicycle, keep on his back and let it meet him with the old horse nearest to it at first, then turn them both round and follow it up, getting the colt as close to it as you can by gentle urging without any fighting. Far better not to do it at all than to have any fighting about it.

215.—If you have an opportunity of taking the colt at once where there are a number of alarming objects, it is best to ride the old horse yourself, and lead the colt with a long strong leather strap attached to a strong leather halter on his head, and passing under a hunting breastplate on the old horse, which will give you power enough to hold the colt, however much he may be alarmed, without spoiling his mouth by any lugging at the bit. Should a hunting breastplate not be at hand, a light leather collar on the old horse, fastened back to the saddle above, and the girths below, will answer this or any similar purpose even better than the breastplate, and make it quite easy to hold a colt by a leather strap passing under it. In this way the colt may be gradually introduced to the sights and sounds of a bustling street ; a few hours of which will reconcile him to more objects of alarm than a years country riding.

216.—A steam engine, a railway train, or a tram car drawn by steam, are all objects so naturally alarming to a horse, that a single introduction to them will not make him safe, nor can the first introduction be safely made in the crowded streets of a town. Here the colt breaker must be guided by his opportunities, and by the more or less nervous character of his pupil. There is nothing better than turning a colt for a few weeks into a well fenced small field, where trains frequently pass, and where there are other horses that will take no notice of them. We have sometimes had an opportunity of putting a lot of colts together into a high strong yard, close to a railway line, which we did, day after day, when we knew that trains would be passing. Failing any such opportunities the colt may be frequently brought to some clear spot where a train is about to pass, and before it approaches strap up one of his legs (353), so as to make sure of holding him, and keep him pretty close to it as it passes. When you know that you can control him on his four legs, take him to a railway station at a time when most noise and motion is going on, and lead him about in close contact with it. After he takes little notice of a train lead him into a town riding on the old horse, and taking them behind a tram car follow it up keeping the colt as close as you can to it, until he ceases to be alarmed about it. Then choose a good place to meet it, first at a safe distance, and get closer by degrees. These lessons must be repeated until there is no alarm at a passing train or tram, and even after that the familiarity with the steam engine, and all its noises, should be continued for some time with a horse that has been very nervous about it.

217.—It would be impossible, and it is quite unnecessary, to even enumerate all the objects with which a colt must be familiarised in different parts of the world.

Where a horse has been brought up without seeing them, a common pig, or a donkey, are objects of great alarm to him. The principle is the same with all the objects of his fear ; the colt must be brought in contact with them without hurting him, and shown that he may pass them, ever so closely, without any painful and injurious consequences to himself. To savagely attack him with whip, curb, and spur, because he is already frightened is as mischievous as it is senseless and barbarous, and has made thousands of horses dangerous and worthless, that with more rational treatment would have been safe and valuable.

218.—The colt may now be said to have passed through his elementary education, and before you can give him his high school lessons he should be turned out to grass another year or even two. A valuable colt can hardly be broken in too young, can hardly be put to hard work too late in life. As a rule the larger the horse the later he matures, so that ponies can he worked much earlier than large horses. By far the most perfect and reliable children's ponies we have ever seen were handled a good deal at a month old, regularly broken at a year old, and never let out of hand afterwards, though they were never called on for any severe work, and were never kept long without green food. Such treatment would make any horse more docile and trustworthy, without injuring their growth or power, but the difficulty is to get them so handled, and we know of no remunerative work to which a young, growing, light horse could be put in these fast times without overtaxing his tender sinews.

219.—The horse that has been handled as we have advised, at two years old, and then turned out, may be taken up again at three, four, or at any time that it is intended to put him to work. He will be found to remember all that he has been taught, although he will most likely come up fresh and frisky as even old horses will be after a long rest. The most exciting cause of restiveness is, generally, the extremely strong desire to return to his field companions. This is one of the strongest impulses of his nature, and one that must be resisted, but you need not contend with him about it under any circumstances in which he could possibly defeat you. We would not even venture to tie him up, when first brought from the field, except with the same precautions taken for the first tying up (184). Where convenient, it is better to put him into a loose box or yard. If the latter, take care that it is secure and high enough to prevent his jumping either over or on it. The exercise he will take in trotting from side to side will help to prepare him for his work.

Give him good hay and roots, or grass, but give him very little corn at first, increasing the quantity as the work gets harder, and his digestive organs adapt themselves to the change of food.

220.—When he has become less frantic about his company, take him into the stall and put him on the reins for two hours (185); then turn him round, tie him up and feed him. Put on a bridle and saddle and mount him with the same precautions as at first (193). Ride him at first, either with an old horse, or in some direction that he will have no strong objection to (197). Practice him at a fast walk and a good steady trot, and teach him that he is not to use his paces together, but to keep at one pace till the signal is given for another. Teach him to walk and trot with a slack rein, but gather him up for a canter, which is not a natural pace for him. For a canter, tighten the rein and urge him a little with your heels, this will start him to gallop, which you must shorten gradually to a canter, keeping him a good deal on his hind legs with his fore feet well before him. He will probably want a good deal of practice before he will canter slowly, pleasantly, and safely. Avoid anything like racing with a companion, as a young horse is generally too prone to take to it, and it makes him unpleasant and unmannerly in company. Let him rather understand that his business is to keep his head level with that of his companion.

CHAPTER XI.

HIGH SCHOOL EDUCATION.

221.—The high school education of the racer, the hunter, the war horse, the child's pony, the roadster, or the overland traveller, will differ even more than that of a lawyer, a doctor, a clergyman, or a military officer.

We shall, for obvious reasons, say little about the first three. Their training is always undertaken by experts, who, if not perfect at their work, are seldom seekers of advice. In what we say of the other three we can only hope to make a few suggestions that will illustrate the simplest means by which any of them may be taught such accomplishments as may best fit them for the work of their lives.

THE RACE HORSE.

222.—The race horse has often the advantage of very accomplished teachers. Men from whom we have learned much. The disgusting vices, so conspicuous on the public race course, are little seen in the private training stable, and those who judge the one from the other, and think that everything connected with the race horse must be depraved, would be surprised to witness the command of temper, the high character, and the noble self control of some of the men who are entrusted with the care of the most valuable race horses.

We have no love for the race course, but it is the gambling not the racing that we abhor. It is absurd to talk of its cruelty. There is no cruelty in letting, or even in urging a highly trained and capable horse to do his utmost for five minutes, whilst the care that is taken to prepare him for that five minutes work has taught horsemen in all other vocations a great deal that has lessened the sufferings of the poor brutes that are daily toiling on with streaming sides, heaving flanks, trembling legs, and shaking tails, indicative of untold and unheeded suffering.

223.—We respect the high character and motives of those who set their faces like a flint against all gambling, whether it be on a horse, a boat, a man, or an election, but we would like to see the warm sympathies of the truly humane, directed, not to the imaginary cruelties of the race course, but to the real barbarities of our fast coaches, and post horses, our butcher boys, and veterinary surgeons, of those fast young and old men who habitually bribe a cab driver to drive his over worked horse at some unreasonable pace, and above all to those ignorant and brutal men who prefer to educate the young horse by torturing him for not doing that which he had never been taught, and thus give him vices that cause him to be ill treated for the rest of his unhappy life.

224.—We have generally watched the handling of the race horse with the view of learning, and not with the hope of teaching; but there is one thing we have often thought of in connection with him, in which we cannot help thinking that his education might be improved. Why is he rarely, if ever, taught to start well? He might be getting exercise and fresh air at the same time, and his riders would be learning their own business, whilst they were teaching the young horse its work. How often a short race has been lost by a bad start; and unless the young horse is taught to stand in row, and start when called on, with more deliberation and patience than can be afforded at a race, he is never likely to start well. Each start that he makes in an actual race, is only likely to teach him to be impatient and restive, but it might be a part of his daily exercise to be taught to stand steadily in row, with any number of companions, and to jump off only, at some very well understood and unmistakable signal, which should certainly not be the spur.

225.—Every one knows that the difficulty to be met is impatience, and not laziness, and, consequently, the young horse wants to be daily taught that he may stand in row, with any number of restive companions, without being in danger of a dig with the spur, as the first intimation that he is wanted to jump forward. If daily practised to walk and to stand a long time in row, and then at some painless signal to start off with companions at no furious pace, and to pull up soon, without any racing, the young horse would come to learn that he need not tear himself to pieces before his race begins, nor be prancing ten yards behind, or with his head the wrong way, when the flag drops. Trainers might often agree together or with any friend on horseback to introduce occasionally the excitement of strange company, which would, no doubt, be an important part of the lesson.

226.—In the hunting field, cruelty is often seen. Amongst every class of men, a few exceptionally hard hearts are to be found, whose pleasure is not marred by the keenest suffering of the animal which serves them, and who even seem to think that there is something glorious in riding a willing horse to death ; or, what is a great deal worse, in frequently riding him to a state in which he suffers all the pangs of a painful death. Still the life of the average hunter is one to be preferred to the average life of the daily harassed coach, cab, or butcher's horse, and, in good hands, his life is one to be envied by most of the other classes of his race. Much that we know about the best way to feed and tend a horse to bring out his utmost capacity, has been learned through the unbounded care and expense usually lavished on the rich man's hunter ; whilst the high prices that have been given for first-class hunters, have done much to keep up a superior breed of riding and driving horses.

THE HUNTER.

227.—There is not much that is peculiar in the education of the hunter. It differs little from that of the education of a first-class riding horse, which a hunter must always be. He should have the best of mouths, that will control him under the very great excitement of galloping in a crowd ; he requires the utmost confidence in his rider, and an unshaken conviction that he must obey the rein, and fly over any possible obstacle at the urgent call of a resolute horseman. He should never be taken to the field by a timid irresolute rider, as for such riders no horses will jump. Nor should he ever be practised at any sort of sham fence, that will give way to his legs, or he will soon learn to expect every fence to do so, and as a consequence turn occasional somersaults with his rider. The remarkable "cleverness" of some horses in the perfect command of their legs, even at the end of an exhausting run, or the "fifth leg" always at hand when wanted, may be bred but can never be taught by any amount of education.

228.—Jumping with a man on his back is a severe strain on any horse, and should not be attempted until the horse is at least four years old, but a younger horse or a pony, may be taught to jump with a skilfully managed lounging line, or well fenced drive, and there is perhaps no better way to teach any horse his first lessons in jumping. Whatever method is adopted begin low enough. Ask your horse to do nothing more than he can do very easily, but whatever you ask him to do must be done. Horses do not like jumping, and can only be kept up to it by the well sustained delusion that they must go where a resolute rider determines to take them. Every opportunity should be taken to show them that they must clear their fences well, or suffer from touching them ; let them take the full consequence of any slovenly management of their legs.

229.—We have received the following letter on this subject from the huntsman of the Ashburton Hunt Club, whose horses always become celebrated, both for the jumps they take in his hands, and for what they will do in other hands, after he has trained them. The horse "Sulky" has been mentioned in another part of this work. "Barry" is a horse on which he won the County Steeple Chase in 1878, as he did on "Pirate" in 1882. He says—

230.—"My success in training hunters, as well as other horses, has been gained by putting into practice the rules and instructions received from you, so that almost anything I could tell you would be stale news.

231.—"Nothing makes horses so good, indeed nothing else will make a good hunter, but consistently keeping up the delusion that you always told us was so necessary to make an obedient valuable horse. The horse must be kept up to the belief that he has no power to resist your will, but must go where you steadily and resolutely direct him.

232.—"In teaching a horse to jump, lounging him over different things does some good, but will never make a hunter. He must be actually ridden by some one with good hands, and with courage and determination enough to make him do whatever he asks him to do in the jumping line. I find that it saves much time and trouble in the end to insist upon a horse doing whatever you ask him to do, however severe the first fight may be. This is especially the case in jumping lessons.

233.—"Begin with something simple and easy, and insist upon its being done. With a young horse, or an unknown one, begin with something that you can be sure to get them over, such as a rail laid on the ground, in a gateway, or a very low furze hedge, and if they stop, which you should try to prevent, don't turn them round, but force them to go over it, or through it somehow.

234.—"Punish a horse severely for baulking at his fences, but if you want to make him a good pleasant jumper punish him for nothing else. If he strikes his fences, and is careless, keep jumping him at something very stiff or prickly, and he will hurt himself quite enough, and by praising and making a lot of him whenever he gets over, however clumsy the style may be, he will soon improve. I never on any account punish a horse in the act of jumping. They naturally dislike jumping and are afraid of it, and you want to do all you can to encourage them. Pet and pat them after every successful attempt.

235.—"To show how completely horses can be made to believe that they must go wherever you steadily direct them, I may say that during the whole of last season's hunting, my horse "Sulky" (229), never once refused anything I put him at, and twice in one run across Mr. Hunt's field, actually dived into and through a furze hedge ten feet high without being touched with the spurs. When I was regularly riding old "Barry," he never thought of stopping at anything I asked him to try, nor would he do so with anyone else that was not afraid to ride him. He once, almost at a stand, jumped a gate five feet four inches high which Mr. Atholstan Parsons turned his head at, without expecting that the horse would take it. At one of the Christchurch hunts, young Mr. Griffiths was riding him, and could not hold him, so turned his head at a large clump of strong furze, nearly an acre in extent, into which "Barry" jumped, and they both had to be cut out.

236.—"In riding at a jump sit in such a position that you can use your heels instantly to assist your hands in guiding. Take both hands to the reins with a firm steady hold, so that the horse cannot possibly slacken them, and then, rather by threatening than actual using your spurs, keep his whole attention to the very spot you wish him to jump. When you are quite sure that your horse is going to jump, shift your weight on to your thighs and stirrups, keeping the same steady hold of the reins both in rising and falling. This will prevent any jar to yourself or your horse.

237.—"Horses that have once found out that they can please themselves about going where you direct them are never very good hunters. With a good deal of trouble and fighting you may teach them to go for yourself, but they will try on their old tricks with the first stranger that gets on them, and too often succeed in getting their own way again.

238.—"'Cleverness,' or that wonderful power to keep on their legs under all circumstances which some horses possess, can never be taught, it is purely a natural gift, and no horse is, or ever can be any good for a hunter that does not naturally possess it. With a hunter it does not mean merely a good shoulder and foreleg, or a well placed foot, such as would make a horse safe on a good road, nor a good eye, and good wind, although of course both are essentially necessary, there must be beyond all these a mental power of some sort that is well expressed by the word 'cleverness.' For instance I have seen horses that have been hunting for years that will day after day jump short and get into a ditch not seen on the landing side of a fence, but before 'Sulky' had been hunting one day he found out that when there was no ditch on the take off side he might expect one on the other, and he invariably puts on more steam where he sees no ditch, than he does where he sees one. He will never touch a wire under any circumstances, but even after he has left the ground, if he sees a wider ditch than he expected, or anything objectionable on the landing side, he will if possible strike either a strong top rail, or a bank, with his hind legs, to carry him a little further, and when he finds only a choice of evils he is sure to take the least. Of course, no one could teach a horse this, it is simply bred in them."

THE WAR HORSE.

239.—The British war horse, like most other public servants, has a good deal of public money spent on his education. He is not supposed to be fit for his work until at least a year after he has been purchased. According to evidence given before a Parliamentary Committee, his education, prior to purchase, costs five pounds, and twenty-eight pounds afterwards; but even the latter sum does not include the pay of his instructor. He has to be perfectly reconciled to a number of alarming sights and sounds, and to understand his place and movements in the ranks, as well as the man who rides or drives him. The "government stroke" in horse-breaking is probably as much behind the times as in most other things, and, judging from the old "rough riders" who afterwards set up as horse-breakers, there is not much in that school that is worthy of imitation.

THE CHILD'S PONY.

240.—A child's pony should receive a great deal of careful training at an early age. The pony has generally more brain power than larger horses, and as such is more liable to be tricky and to learn to take care of itself. It can be taught easily, but the danger is that it may learn too much that will not be in the interest of its owner. For this reason, and on account of the extreme docility required, and its unfitness at an early age to carry a man on its back, we would always begin by putting it down (353) again and again, and teaching it all we could on the ground (357 to 367) until it was perfectly safe to handle in any part, to put anything on it, and to pull it about in any direction. For the same reason we would always break them in to harness, whether required for it or not, as it gives an opportunity to familiarise the pony to a number of sights and sounds, that it must be reconciled to, and a little deadening of an extremely sensitive mouth would hardly be an objection in a child's pony. After the usual education both for saddle (183 to 220) and light harness (379 to 403), it should be taught to let a child roll under it, to hold on to its legs, or tail, and to stop when he hears the word "whay," or the moment its rider has lost his seat, lessons that would be well taught to the hunter, or to any other riding horse, but which are quite essential to a child's pony.

241.—Get a strong suit of boys old clothes, and with sticks, ropes, and straw, make, what is called a scare crow, but what in this case, may be as strong and as handsome an imitation of a boy as you can manage. Take it to the pony for approval. Let him have a good look at it and touch it with his muzzle. Then put it down on the ground and get the pony to investigate it there, moving it into several different positions.

242.—After this tie it securely on to a piece of plank rounded on the under front edge, so that it can be drawn like a sledge. Let the head of the scare crow rest on the back end of the plank or sledge, and fasten a small rope or strap eight feet long to the front end. Now take the pony and the scare crow into a grass field, and again invite him to inspect your work. Then take the pony in your right hand and the scare crow line in your left and walk on, so that the pony can see the scare crow dragging along by its side. If it is much alarmed about it, stop and get it to have another look at the scare crow on the ground, and then move gently on again. When it takes little notice of it, lengthen and shorten the rope, and let it see it nearer and farther behind it. When nothing will alarm it on that side, change hands and try the other side.

243.—When quite reconciled to it on both sides get a pair of long reins on the pony, and tying the scare crow to one side of the saddle, drive the pony about with it for an hour, after which tie it to the other side and do the same. Then secure your stirrups to the saddle and tie one leg of the scare crow to the left stirrup, in the position that a boy would occupy with his foot hung in the stirrup. Drive about like that, then try the right side. Give hours, or days, or weeks to it if necessary, but let it be done, so that the pony will take no notice of it, and no jumping of the scarecrow over uneven ground will startle him. A child's life may depend on this being done thoroughly, and at any rate, a parent's peace of mind will be very much secured by it. No one can judge how long it will take, as some horses will be reconciled to more in an hour than others will in a week, but the most timid will come round with quiet perseverance.

244.—Having reconciled the pony to dragging the scare crow after it in various positions the plank may be removed. Put the scare crow under the pony and move it about, then bring it gently against his legs, and rub them with it. Then laying it down under him between his fore and hind legs lead the pony on and teach him to step over it, first with his hind legs and then with all his legs. You may now put it on the pony's back, and let it fall off, first on one side and then the other, without moving the pony, and repeat the process until he will take no notice of it.

245.—For the next lesson you will require some assistance, and should get your own pockets well filled with oats, carrots, biscuits, or anything that you know the pony to be most fond of.

We may here say that the patting and coaxing so much recommended by some writers as a reward for good conduct is not much valued by the horse, and is never regarded as an absolute reward. He often accepts it as an evidence that you are in a good temper, but it is no more a reward or a treat to him, than the kisses are to an infant, which some ladies are so prone to lavish upon them. A few oats in the one case, and a few playthings in the other are far more potential.

246.—Get a man to walk by the side of the pony, and to hold the scare crow in the position of a rider on the saddle, whilst you drive the pony with reins from behind. After all he has seen of the scare crow, the pony is not likely to make any objection to this. If he does, one of his legs may be strapped up (353), and, whilst you hold him by the head, let your assistant place the scare crow on his back, and move it about until he cares nothing about it. Then put down the strapped leg, and lead the pony on, whilst your assistant holds on the scare crow. Get back to the reins as soon as all goes smoothly, and let your assistant step gently away, when the scare crow will fall off, whilst you stop the pony at the same time with the reins. At the first fall, let the pony step past the scare crow, and don't be too rash with your reins, or you may make the pony step on the scare crow, which he should never do As soon as the pony is stopped, go up to him and give him a few handfuls of oats, or something that you have provided as a known luxury, fondling and soothing him at the same time. If more likely to be a treat to him let him crop a few mouthfuls of grass, but oats should always be a treat to a child's pony, as they are to any horse not highly fed with them. All this may be repeated again and again, stopping the pony more sharply and suddenly at each fall of the scare crow, and letting him rest and feed after each stop until he stops of his own accord, which he will very soon do. Let this lesson be repeated day after day, until stopping at a fall becomes an established habit with the pony (198).

247.—For the next lesson your assistant should be a boy that is not afraid of a horse, that can ride a little, and will do what he is told. His clothes should not be a very valuable suit, and he should have no boots on his feet. Put a halter on the pony, with a bit buckled to it for your own use, but let the boy's riding reins be fastened to the upper rings of the halter, so that he cannot interfere much with the pony's mouth. Put on a saddle without stirrups. Then put the boy on the pony and lead him yourself to some ploughed field, or other soft ground, taking your long reins with you, and your pocket full of oats, of which the boys pockets should also contain a supply. When you come to soft ground let the boy get off, and going up to the pony's head give him a handful of oats, and a rough patting and rubbing all round, whilst you hold the pony's head and hold up one of its fore legs in your hand. However quiet the pony may be it is best to take this precaution, as boys generally do something out of the way that teazes a pony, and although the pony will have to get used to unskilful handling, it can and must be done without the risk of a kick.

248.—When the boy has handled the pony all round drop the pony's leg, and let the boy come up to his head again, and give him another handful of oats, in any awkward way he pleases.

Then let the boy lie down quietly on his back and give the pony another handful of oats, either out of the boy's hand or close to the boy out of yours. The boy may next throw up his legs, then his hands, roll over, stand on his head, and perform as he pleases, whilst you lead the pony close round him, getting the boy to repeat anything that alarms the pony. Every now and then the pony should be encouraged to come up and take a handful of oats from the boy's hand, until he gets to thoroughly understand that it is only a boy after all, however frightful his antics may have made him appear. The boy may next put on a girl's frock and bonnet, and with the foot again held up, rub round the pony in that dress, and afterwards repeat on the ground all that he has done before in his own clothes.

249.—Setting aside the frock and bonnet, the boy may next come up to the pony and after giving him a handful of oats, hang on round his neck and climb over him with hands and legs in any awkward way he pleases, getting up on one side and down the other, reversing the sides, and making the descent, as much like a tumble as he pleases. When the pony is quite reconciled to all this, and will stand quite still with such gymnastics, put on your long reins and putting the boy on the pony's back, with the reins that you fastened to the halter in his hand, drive the pony about, with the boy sitting steadily in the saddle. After a little practice at this, get the boy to slip out of his seat and hang, holding by the saddle, whilst you immediately stop the pony with your reins. Then let the boy drop off and rolling over on the ground, get up and feed and fondle the pony. If the pony does not very soon learn to stop of its own accord directly the boy is unseated, as most ponies will do, a curb bit or loop bridle (356) may be used, which will soon make him afraid to move on when the boy is out of the saddle, but the curb must not be used so as to set the pony backing and prancing about, and is better not used at all unless found necessary, after a patient trial without it. The boy should come off sometimes on one side and sometimes on the other, and may be as long about it as he pleases. Continue the lesson until the pony invariably stops of his own accord, and even after that, it is best repeated occasionally at short intervals. When once the habit is confirmed we have seen a very lively pony stand stock still, allowing our horse to go away from it, and a passionate infant to kick its legs for having thrown him off. A daughter of the same pony, bought for seven pounds, was sold for fifty pounds after it had been well instructed in this lesson.

250.—Whilst on soft ground, strap up one of the pony's legs, and, holding him firmly, put the boy on his back behind the saddle, and let him shift backwards and forwards, to accustom the pony to carry on any part of his back. If the pony makes any fuss about it let it be frequently repeated, and consider no child's pony broken until he will carry a string of children on his back, reaching from mane to tail, and let any of them safely slip off either behind or before. If you do not teach this lesson in its proper time, place, and manner, the boys will be sure to try their hands at it, with the probable result that the pony will learn a lesson in the art of how to get rid of an unwelcome rider.

251.—The pony must next be taught to stop at command; and for this purpose it is important to choose some word that the pony is not likely to hear when it is not wanted to stop; as, however well you may teach a pony to stop for any word, it will soon be ineffectual if it hears the word often, without being allowed to stop for it. The common word "whoa" has got to be constantly used in the hearing of the horse for every imaginable purpose, and it is hopeless to expect that all who come in contact with the pony will cease to abuse that word; therefore it is necessary to adopt some other. The carter's word, whay, is less likely to be abused in this way, and there are not many other words that the pony will be likely to mistake for it. We will, therefore, advise its adoption, although, of course, any other word, not likely to be used without meaning, would do just as well.

252.—For the first lesson, put on a saddle and a pair of blinkers, with a ring, curb, or some sharp bit. The object of putting on the saddle is to make the pony associate the saddle with the lesson, and to believe that he cannot be disobedient when the saddle is on, even after he has found out that he can please himself about obeying in the field. The object of the blinkers is to prevent his seeing and learning too much, and getting to calculate that he need only stop when you are in a certain position behind him. Now tie to the bit two light rope reins, each twelve feet long, and drive your pony about with them. This will be nothing new to him after his former lessons, but if the blinkers make him fidgety at first, drive him about until he gets over that, and then begin your lessons.

253.—Stop suddenly, with a sharp jerk on the reins, and at exactly the same instant say whay. Repeat this until the pony will always stop instantly for the word without the reins. Next give up the reins to an obedient, quiet assistant. Tell him to make no noise himself, but to stop the pony sharply with the reins the instant you say whay. Then stand some distance from the pony, on either side, and say whay. Do the same at both sides of him, as well as before and behind him, and let him find that your position makes no difference, and that the jerk on his mouth comes all the same wherever you are. Then get on another horse and ride beside the pony, and repeat the word at a great number of differing distances, until the pony will stop with certainty wherever he can hear it, and he can hear it much farther than you can.

254.—Next take off the blinkers, and put on a sharp-bitted bridle. Tie a long strip of rag on the root of the pony's tail, and form with it two long loops, on which to rest the reins. Tie twenty feet of binding wire, such as is used for tying sheaves, to the end of each rein, and twist the far end of each wire round a small piece of stick for a handle, so that your assistant can stand thirty feet from the pony's mouth with these handles in his hands, and, without any connection that will be very apparent to the pony. Mount your horse and ride by the side of the pony. It will probably still stop instantly for the word, "whay;" and if it does so, after several trials, nothing more need be done, as it is just as well that it should get no opportunity to see how matters have been managed. If it shows any hesitation about stopping, the wire reins must be brought severely into use, and taken off as soon as the pony is quite sure to stop without them. Test the pony's obedience on the following day, and repeat the whole, or any part of the lesson if you find it necessary. The habit of stopping to the word must be thoroughly established by constant practice for some weeks after the lesson has been thoroughly taught (198). Obedience to the word must also be constantly enforced by any rider on the pony's back; but above all, it must never hear the word without obeying it. For this reason you should never, but especially at first, use the word when trying to catch the pony, or under any circumstances in which obedience would be doubtful, and cannot be instantly enforced.

255.—With ponies thus trained, we have turned our own five boys out alone, with their little lively nags, and never had a serious accident with any one of them. We would rather trust them with such ponies alone, than with any number of grooms or footmen watching them on ponies that are not under control. But remember that no pony, however quiet and well-broken, can be safe for a child's use if highly fed with corn and kept in a stable without plenty of work. Paddock-fed ponies may not look so bright, but they are infinitely safer for any child's use, and are quite capable enough for anything that a child could require of them. They may wear a canvas and felt cover during winter, and at that season may get hay and even a little corn if they have regular work.

THE ROADSTER.

256.—A horse can hardly be said to have passed his primary education until he has been taught all that is really necessary for an ordinary roadster to understand. We have practically given his education in the riding horse's primary lessons, so that we shall not have much to say about him in this chapter.

257.—He will have more to do than most other riding horses in the way of passing and meeting vehicles, and other objects on the road, and great care and patience should be exercised to teach him to do this pleasantly, without getting dangerously near them, or shying too far away from them. We like to leave a horse alone at such work as much as we can, only interfering when he does wrong, as this habit makes him a safer horse in the dark, when he alone can see what to do. There is no time that a man feels so charmed with a good horse as when he has brought him past a hundred real dangers which he could never have avoided with his own eyes.

He should be taught to go a little faster when overtaking than when meeting an object. A good bold rider may allow him to select a soft path near the side of the road to save his feet, but when so indulged there is always more risk of a sudden swerve to one side, so that a less accomplished rider had better teach his nag to keep the best path he can find nearer the middle of the road.

Cantering on hard mettled roads is an expensive luxury, especially with a heavy weight, as few horses stand it long without failing in the leading fore foot or leg, so that a young man who wants to save his horse from lameness had better be content to walk or trot. As in every other riding horse, a good, fast, easy walk is a valuable accomplishment.

258.—Your horse will have been taught to carry every article of dress (188, 191), he must also be thoroughly reconciled to an umbrella, or the most glaring uniform ; should be practised at standing quietly for his rider to shake hands, and not to fear the approach of a lady carrying or swinging about a parasol. He should also be taught to put himself alongside and retreat well from a gate, so as to assist his rider in opening it on his back. All this is very easily taught if it is set about patiently, as part of your business, and before a horse has been spurred and knocked about for not doing it without teaching.

THE OVERLAND TRAVELLER.

259.—The horse for the overland traveller should possess nearly all the good qualities of a very good horse, and perhaps we never know how many good qualities we want in one horse until we come to try and find one for this purpose.

He must be a good walker, a good swimmer, and should be a pleasant ambler. He must possess an iron constitution, that is not likely to fail under the greatest hardships ; he must be easy and safe in his paces, clever on his legs, easy to mount, easy to lead, easy to catch, easy to tether. He must be bold enough to face any river, to clamber over rocks, to venture up and down precipices, and over any reasonably soft ground, and yet should have sagacity enough to refuse an impassable bog, or a quick sand. In fact he should be wonderfully well bred and well taught.

260.—There is a great difference in horses for swimming. For crossing unknown, flooded, muddy, rapid rivers, we would never take a horse that we did not know to be a good swimmer. No horses take so easily to river work, as the colts that have followed their mothers through such rivers, and have learned in infancy neither to dread nor to despise them.

In many parts of New Zealand horses are kept by the Government for the express purpose of taking travellers across rivers in which fords will often change every week, and it is beautiful to see how bold, and yet how sagaciously cautious such horses often become. "If you have got the sense to let the old horse alone, he will take you over all right" is the marching order usually given to the traveller mounted on one of these horses, to cross a river in which no man and no boat could live, and in a country where more colonists have been drowned in fresh water than in any other part of the world. Too rapid and too full of timber and rocks for any boat, too benumbingly cold for the best swimmer and the best human lungs in the world to live in them a quarter of an hour ; these rivers, flooded with snow water, can often only be crossed by a very powerful, surefooted, courageous horse, that knows where to swim and where to walk, or by one that has a rider on his back that can show him and consult him by turns.

261.—There is perhaps no position in which we feel the value of a good understanding with a horse so much as when alternately swimming and fording one of these rivers; and when our life at one time depends upon his perfect obedience to our will, and at another upon our perfectly understanding the admonitions of his superior instincts. Here practice is of great importance, to both horse and man, neither of them must be timid, neither of them must be rash, each of them must feel confidence in the other. It is wonderful to see the confidence that a horse will acquire at this work in a man that has proved that he knows both how to direct him and to understand him.

262.—Many horses could never be taught this work, and no one should venture into such rivers on an unproved horse. Try the horse first in a clear, quiet river, with large boulders at the bottom, and see how he manages his feet amongst them. If he makes a mess of it you can't teach him to do it properly; try another, and don't waste time upon him. The same may be said if he walks upon his hind legs when he ought to be swimming, as many horses will do that are not accustomed to deep water. Never take such a horse into a dangerous river. The first horse that served us this trick made us lose both of our stirrups, and we had to finish our journey without any. He was the last horse that we ever started with on an overland journey without trying him as a swimmer.

263.—Left to himself a horse will almost always choose to cross a river on a ford, but if you know that the river is too high for fording, you should avoid every shallow, and go at once to a deep quiet part of the river, where you can see a good landing far enough below you on the other side. Be sure that you allow enough for current, as it will not matter if you reach the other side half a mile above your landing place, but it may matter a good deal if you reach it half a yard too low. We have sometimes been washed a mile down whilst crossing a flooded river not a furlong wide. Never allow your horse to waste his strength by trying to swim up a rapid river. If you have missed your landing place you must seek another below, however far that may be, and your horse should be kept in deep water for that purpose, with a sharp look out for logs, or rocks, that may roll him over. If you are thrown off in deep water don't waste your strength in trying to get on again, because you cannot do it. You have nothing to spring from and the horse will roll round towards you if you climb up him, like a floating log. Hang on the mane or tail until your horse gets a footing again, keeping only your head out of water. A strong swimming horse will carry a man in the saddle with armpits and shoulders well out of water, but he does that at great inconvenience to himself, and if the struggle is a severe one, you should lean as much of your body under water as you can, which will keep the horse's hind quarter's higher, and in a better form for swimming.

264.—When a swimming horse first touches the ground in a strong current, he is obliged to instantly give his body a very strong lean up stream, which often unseats a rider that is not on the look out for it, coming as it does at the same moment that the stream begins to strike hard on the horse no longer floating with it.

265.—Crossing a river on a deep rapid ford is much more difficult, and requires more presence of mind than swimming across it in deep water. The most practised eye will be deceived as to the direction, and you will fancy that you are keeping up stream, when you are really going fast down it. Before you go into the river, you want to fix upon the best point to make for on the other side.

If a straight line is practicable, which it seldom is, you can take two prominent land objects, on the far side, that will give you the right line, and keep your eyes on them as you cross, paying no attention to the apparent direction you are making in the stream. When really keeping the right line on the ford, the horse will appear to you to be walking almost straight up the stream. Never hurry your horse on a ford but give him plenty of time to choose his footing, and to make a good use of faculties far superior to yours in avoiding dangers under water. If the current has proved too much for the horse to bear against, and you find yourself on the low edge of a ford, with no power to get further on it, don't attempt to go back again, where you would be sure to get washed off into broken water, in which your horse could neither swim nor walk, but make at once for smooth water, such as you would select for a boat, and then swim for either bank that the stream will take you to. Do not let your horse exhaust his strength at any impossible landing place, but swim on to a good one. If your horse must try a difficult one throw yourself off and relieve him of your weight for the struggle.

266.—Your overland horse should be taught to tether well in some way, and the best way is by the fore foot. Any horse unaccustomed to be tethered, is sure to lame himself by cutting his hind pastern with the rope when tethered by the neck, and although they learn to manage the rope better after a while, a horse never gets so clever with it as a mule or a donkey will do, and is always in more or less danger of getting wound up in a tangle, and of losing a night's rest and a night's feed.

When tethered with a strap round one of his fore pasterns he is much more safe, and a lighter rope will do it. He requires a little education for this. Before he is aware of his bondage, he may start off at some fast pace, and get and give a violent jerk at the end of his tether. This he will soon learn to avoid, and until he does so, the rope may be held in hand or left to drag after him. He will often tread on it with his hind feet and will learn from that to move his tethered foot with caution. For the same reason, the first six feet from the strap that goes round his foot will require to be very strong, and the requisite strength, lightness, smoothness, and durability will be found in nothing better than a strip of raw cow hide, about an inch wide. Another advantage of this short length of raw hide is, that if your rope breaks the hide still remains, and greatly impedes a horse's power to get quickly away from you. The rest of the tether line may be light tarred rope, of good quality. Such a rope often comes in useful for many other purposes on a long journey, through a new country.

267.—The tether rope is not much used by experienced bushmen, on experienced horses, in very long journeys. Either round the neck or the foot there is a probability of a horse getting into a mess with it when rolling. Hence some danger of injuring a horse, or of a breakage that lets the horse get entirely away, besides which it too commonly puts the horse on very short allowance for the night. For all these reasons hobbles are more generally used, and the horse should be accustomed to walk in them a little before he starts on a journey or he may stick up a whole night or two without moving at all. On the other hand, some horses get so clever in them that they are of no use on them. They sometimes learn to canter almost as well with them as without them. When this takes place it may be prevented by fastening a piece of raw hide to the hobbles, long enough to be trod on by the hind feet.

268.—Great care is necessary to prevent the hobbles from rubbing the pasterns sore. The frequent wetting and drying and dirt which they necessarily get from wet grass and drinking holes makes leather very harsh and uncomfortable, however much you oil or grease it. The padded hobbles that look so comfortable as you see them new in a saddler's shop soon get worse than any others at rough work. For actual service we have found nothing save the horse's skin so much as plain leather or green hide straps, with the hair inwards, well soaked in water every evening before they are put on. The hobble may sometimes be buckled above, and sometimes below the fetlock joint, so as not to always rub the same place.

269.—Of course, either tethers or hobbles should be used as little as possible. One of them will be necessary whilst a young fresh horse is within easy reach of a much-loved home, or compelled to stay in a barren, waterless territory. In such places a traveller's life may depend on their effectual use, and he must run no such risk. But a good horseman can almost always trust his horse loose, or dragging a tether rope, until ready to go to sleep himself, and by that time he will often be able to correctly read the horse's intentions for the night.

270.—To make the most of a horse on a long journey no man should sit steadily on his back for an hour together, or pass an exceptionally tempting plot of grass without letting his horse have a bite at it. To get off your horse's back and lie down on your own back for ten minutes every now and then will be a great relief to both. An active man will get on faster if he rides two miles, and walks quarter of a mile, all the journey through. A very strong man at Clifton, near Bristol, who could carry more than 700lbs without injury for a short distance, undertook for a wager, to carry 286lbs. for a mile. He did it, but was so injured by the prolonged exertion that he never recovered his original strength, and died soon afterwards. Let an ordinarily strong man take 100lbs. on his back, it seems a mere nothing to him at first, but by the time he has carried it a mile it will have become an oppressive burden.

271.—In 1847 a stock owner in New South Wales started with 2,500 head of cattle for Adelaide. He engaged five stockmen, for four of them he was to find horses, the other undertook to find his own. The distance driven was about a thousand miles. He provided three good fresh stock horses for each of the four stockmen, besides a number for himself, and was disgusted to find the man who undertook to horse himself came with only one. We overtook the party after they had travelled about 800 miles, and then the only horse amongst them that had a whole skin, or that was fit to take a man on his back, or that could yard the cattle, or overtake them when they ran away, was the one horse that had never had a day's rest, and had done all the fastest galloping, but whose rider never stuck on his back for an hour together, but drove the horse feeding before him three parts of the day. The other horses only worked about twice a week, but then a man cruelly stuck on their raw backs from morning till night.

272.—There are a number of simple ways by which you can secure a horse sufficiently whilst you drive him before you, or stop him for a short feed. With most hard-worked horses, it is enough to simply run the reins between the stirrup leathers and bring them over the stirrup iron. This does not interfere in the slightest degree with the feeding or easy motion of the horse, and can be made very effectual with a piece of very easy education. A long piece of string, tied to the stirrup, and brought back in your hand will, if judiciously used, soon make the horse believe that you have always got him in hand when the reins are so fastened.

If more restraint is needed put the reins between the fore legs and then fasten them a little shorter, so that the horse cannot get his head very high. If that is not sufficient, pass them through a loose hoop, tied or buckled under his knee. You will soon find out how much restraint is necessary to ensure catching him easily when wanted, and it is your interest to inflict no more.

CHAPTER XII.

LOCAL SYSTEMS.

273.—Scotch heads are the largest and most intellectual in the world. Whilst nominally submitting to the overwhelming power of a more populous, more wealthy, and more fertile country, they have actually ruled it, giving it King's laws, Prime Ministers, and Cabinets. To the best of these heads we owe the steam engine, our steam ships, and our gas lighted streets. The English and German head is not far behind the Scotch. All are ruling heads, all inventing heads, all eminently persevering heads, full of resources to meet every emergency.

274.—But so long as these fine heads stay at home, there is some overpowering conservative influence that binds them too long to time honoured practices, keeps them contented with inferior tools, and even gives them a secondary place in the race of inventors and improvers. When the same men put their foot on a virgin soil, when they mingle together on an unimproved country, when they compare under the same surroundings the merits of the different tools that each has brought from a native country, when they survey the wealth of nature's resources and realize the dearth of labour to appropriate them, they are at once roused to exert their faculties in the production of improved tools, and seek every means to exchange the drudgery of the no longer cheap field worker, or house builder, for the more available labour of the patient ox, the willing horse, or the untiring steam engine. Thus, the lightest and most convenient tools, the only complete and expeditious saw mills, the effective screw pulverizer, and above all the triumphant reaper and binder, giving cheaper and better bread to the whole world, have originated not with Britons at home, but with Britons abroad ; not with those who have hovered around the old nests, but with those who have taken a wider flight, and learned more both of what the world possesses and of what it still needs, and have seen what ample room there yet is for every willing hand and every able head.

275.—In such new fields of enterprise the Scotchman is soon persuaded to give up his venerated swing plough, the labourious scythe, the slow sickle, and the back-trying shovel ; and learns to rely more on the better and cheaper muscles of the horse. No horses are better broken, upon the whole, than the horses of Scotland ; but a colonist smiles when he reads, in a book revised by a Scotchman in 1883, of the weeks, months, and years that are to be devoted to the education of one horse. "As it was in the beginning, is now, and ever shall be," is stamped on every page of that well-meaning and more than usually accurate book.

276.—Nor is it from his own big-headed countryman alone that a British colonist or traveller will learn something about the treatment of the horse. Some of the brightest and best ideas of the numerous American horse tamers have been borrowed, without acknowledgement, from the red Indians. Those rope bridles that are truly said to control the most vicious horse, are the exact imitation of the bridles used, both in North and South America, by men who have long controlled very wild horses without either iron, rope, or leather ; but have made bridles, saddles, stirrups, lassoes, lounging and tether lines, from raw hide, or from the woods and weeds of their own territory. The wonderful eyesight of even the barely human headed Australians, have taught us something, and we shall show presently that by far the best and most valuable lesson we have ever learned in horsebreaking we got from a half civilized native of New Zealand, whose father had never seen a horse.

SOUTH AMERICA.

277.—South America is the country in connection with which romancing travellers delight to spin their "tallest yarns" about the wild horse. The nominally wild horses, in any settled part of that country, are less fleet, and are not less handled, nor more wild, than some of the largest herds owned in Australia. But English books do not get criticised in South America as they might do in Australia, and therefore it is more safe to describe impossible feats with the lasso, and the wonderful success of brutal whips, spurs, bits, and men, which never produce good horses in any other country.

178.—We cannot understand why so many English writers on the horse have given credence and publicity to such clumsy and mischievous romances.

We will copy one from Basil Hall's journey to Peru and Mexico, which we take because it is a fair sample of the rest, and has been published, as if it were true, by many writers, including Youatt, and the Society for the Diffusion of Useful Knowledge.

179.—"When a Gaucho wishes to take a wild horse, he mounts one that has been used to the sport, and gallops over the plain. As soon as he comes sufficiently near his prey, the lasso is thrown round the two hind legs, and as the Gaucho rides a little on one side the jerk pulls the entangled horse's feet laterally, so as to throw him on his side, without endangering his knees or his face. Before the horse can recover the shock the rider dismounts, and snatching his poncho or cloak from his shoulders wraps it round the prostrate animal's head. He then forces into his mouth one of the powerful bridles of the country, straps a saddle on his back, and bestriding him removes the poncho, upon which the astonished horse springs on his legs, and endeavours by a thousand vain efforts to disencumber himself of his new master, who sits quite composedly on his back, and by a discipline which never fails, reduces the horse to such complete obedience, that he is soon trained to lend his whole speed and strength in the capture of his companions."

280.—Now, in the first place, let the English reader remember that the Gaucho's horse is described as a poor starved thing, merely caught and worked without any proper feeding, until used up, and that the wild horses on the dry plains of Peru and Australia, are not soft, fat things, but are as hard, and often in far better condition for work than the horse the Gaucho rides. How then are they overtaken so easily by one of their own peers, loaded with a man and all sorts of heavy paraphanalia on his back?

281.—Then having overtaken him, how does he throw the lasso over the hind legs of a galloping horse, unless the horse could gallop on his back and throw his legs upwards? Then having thrown the lasso on the hind legs of a galloping horse, how does he persuade it to stop on them, whilst he tightens the noose, and puts himself in exactly the right position to throw him so artistically? Then how does he persuade him to stay with his head on the ground until he gets up to him with the poncho? and how does he put the bridle on a head completely covered up? And why does he perform all these miracles, when a lasso, thrown round the horse's neck, would choke him down more gently, and keep him there till hobbled? And how can any man get the girths round a horse lying on the ground?

290.—Surely every writer on the horse ought to have seen at once that the whole story was a pure fabrication, and one calculated to convey a very false impression in favour of successful brutality. We could more easily and much more harmlessly believe Lady Barker's description of boar hunting in New Zealand, where she figures as a David on horseback without a sling, and the thick skulled wild boar as a soft headed Goliath, which prudently omitted to bring a sword for his own decapitation.

291.—It is quite true that the horses of South America, as those of every other country where horses are excessively cheap, are hastily and badly broken, and brutally treated; and, until exhausted with hard work, are proportionately uncertain and unsafe to ride; but they do not move best for spurs as big as a turnstile, nor for whips that "horribly mangle their sides." Some of the Gauchos become skilful with the lasso, so that when the wild horses are driven to a corral they can do without a pole what the Australians do with one, but they perform no miracles, and cannot set aside the ordinary laws of motion and gravitation. We know of nothing either in the humanity, the expedition, the economy, or the success of their proceedings that make them worthy of imitation.

AUSTRALIA.

292.—Australia is a vast island or continent, where the thoroughbred horse has reached great perfection, and where he is ridden by men who are not surpassed as riders by any of their own race.

293.—In January, 1847, we went from New Zealand to Sydney, where we purchased a double-shafted dray, five unbroken fillies, and harness for four horses. After we had paid for the fillies, the vendor, who was a cripple, was kind enough to say, pointing to the finest of the fillies, which we thought we had purchased very cheap at nine pounds: "You see that filly?" "Yes." "Well, she has crippled me, and she will kill you if you don't look out." The caution was very useful and enabled us to break her in, as we did all the others, without any help, any yard, or any mishap at all. As we broke them we drove them on overland towards Adelaide, distant 1,200 miles, across a country with few rivers, mountains, swamps, or natural obstacles of any kind. We arrived in Adelaide, after a pleasant but rather adventurous three month's drive, with five remarkably good cart mares, which we sold, on trial, for £40 each. The highly nervous mare, that nearly killed her breeder, went on one occasion nine days without water rather than drink out of a bucket, and her purchaser in Adelaide told us that during the whole of the first winter that he kept her, she would never venture to lie down in a stable. We mention this as one of the many proofs we have seen that what we call vice and bad temper in a horse is generally the result of an excessively nervous temperament, most painful and unfortunate to the horse itself, and demanding not harshness, but more than usual gentleness from those who undertake to educate him.

294.—During this long journey we had many opportunities of seeing what is done in the way of taming the extremely wild horses of Australia, and the systems adopted in a country long notorious for the best bred, and with the exception of South America, the worst broken horses in the world.

On arriving at one large station within 200 miles of Melbourne we were told that on the following day all available hands and horses would be engaged in trying to drive a "mob" of horses into the yards. We noticed that the paddocks, fences, and yards, were all arranged so as to offer every facility for their capture.

295.—In the morning, relays of first-class well-trained horses and horsemen were directed to different parts of the run, so as to relieve each other in the arduous exhausting chase. Clouds of dust could be seen here and there, now nearer and now farther from the station, and before noon one large cloud steadily approached the homestead, with a noise of hoofs more rapid than of a charging troop of cavalry, and with the crack of silk ended whips, louder than the report of a rifle. Every thing had been well planned for their reception, not a dog or pig was loose, and every sack, hide, or sheep skin had been removed from their track. As the way grew more narrow and the fences higher the leaders snorted, stopped, hesitated, and essayed to turn back, but it was too late. The steaming horses, the excited men, and the serpent-like whips, flying high in the air, and cracking like a rending forest, were close upon them, and it was soon evident that many in that beautiful herd of truly wild, though well-bred horses, had seen the last free and happy day of their life.

296.—The immensely strong and high yard was well tried, as the timid powerful mass pressed from side to side, to get as far as possible from the human forms that conveyed so much terror to them. About twenty-five horses were drafted into a small yard surrounded with a top plank for a man to walk on. A rope was adjusted to the end of a long light pole, and a running noose skilfully dropped over the highest head. A single turn of the other end of the rope was taken round a strong post and held with give-and-take enough to save the horse's neck. A gate now opened into an adjoining little yard, into which the loose horses ran, leaving the captive alone. He makes a frantic pull backwards, and threatens to smash himself to pieces against the strong timber, but the merciful rope has cut off the supply of oxygen to his brain, so that it no longer issues its mandates to the powerful muscles. The legs bend under the load, and the horse sinks helpless to the ground. One man is instantly at his head, two lean over his back, his legs are hobbled, the rope is slackened, and he returns to consciousness to find himself deprived of the use of his limbs, and in actual contact with animals more terrible to him if not more cruel than lions.

297.—Much has been said and written against this system of capturing the wild horses of Australia. It is undoubtedly too dangerous for adoption in any country where horses are valuable, and quite needless where they are moderately tame. But knowing what these horses really are, and what the men cost, and what the men are who have to handle them, and the price the horses fetch in the home market, where thousands of good light colts have been sold for 10s. each, we are unable to think of any plan less cruel that could be made to answer the purpose. To prescribe Rarey's straps, or Sample's holding by head and tail, would be like the old nursery receipt to catch a wild bird by putting salt on its tail. No Rarey could creep up to them, no Sample could hold one of them for a moment, even if the head and tail were put in his hands. They would knock themselves to pieces in a crush pen, and would batter themselves far more if thrown in any way we know of without the temporary garrote.

298.—To our mind, the cruelty comes in at the next stage of the business. A little more time and patience spent with the wild horse when on the ground (357 to 363), far less than such a timid, neglected animal might be expected to require, would soon put him on a par with younger handled horses, would save a lot of rough, cruel, dangerous fighting with him afterwards, and often make him a trustworthy and valuable servant up to a reasonable old age.

Whilst unable to hurt himself or anyone else, enough time should be taken to convince him that he may come in contact with man without being consumed, or suffering any serious injury (357). An extra hour so spent would make all the difference, and would be returned with interest in after dealing with him. There are not a few men in Australia now who have found this out and act upon it, but unfortunately colonial life is still prone to be fast, men's time is costly and horses are cheap ; there is no fun where lives and limbs are not endangered, and the peace of mind or comfort of body of the poor horse is too often a matter of no concern to any one. He is too soon allowed to rise, either to his knees or to three legs, so that the saddle can be girthed on him ; a "black fellow" is hoisted to his back, his foot is let down, and he starts to a series of efforts to rid himself from the frightful object that clings to him like a jaguar, and thus becomes a buck jumper for the rest of his short and suffering life.

299.—Like Peter Pindar's razors, these hastily handled horses are not made for use, but for sale. They do to export where they get more broken on the voyage to India, or to sell by auction, and are not unfrequently bought by those who keep horses for some cruel destructive work, trusting to fatigue to quiet them. They are harnessed to four-horse coaches without any farther breaking in, and form the far travelling, illused, jibbing horses that are everywhere to be seen drawing the public conveyances of Australia. The poor things have never been taught to walk a step in harness, and are afraid to do so. It is no uncommon thing to see an Australian coach delayed five minutes, or even quarter of an hour, after changing horses, before any two of the nervous, untaught, timid, illused brutes, can be made to rush in one direction long enough to start the coach on level ground, a piece of ignorance for which they are belaboured and galloped the whole stage by the infuriated coachman, most of the passengers declaring that the "obstinate brutes richly deserve it."

300.—So limited is the education of these wild, high-spirited horses that they will often carry a man without a coat, but not with, or *vice versa.* If his hat comes off they mistake him for some wild animal that they have never seen before. If his foot slips out of the stirrup they jump from its threatening swing, and we hear how cunning and artful they are to take such an advantage in a moment.

301.—It was one of these half-broken horses that killed the Rev. Mr. Johnson in Adelaide. He had hired a horse that seemed quiet enough under him, with his hat on, but when his hat blew off the untamed animal flew away at a frantic pace and threw him on the hard road, with fatal velocity. A smith, an engineer, or an architect is liable to be tried for manslaughter if death results from his faulty work. It would be a happy thing for the horse and his purchaser if his breaker were subjected to the same penalty.

302.—As we got a few hundred miles further on towards Adelaide we were fortunate enough to hear of another horse muster that was to come off at the head station of another great horse breeding squatter, and we stayed to see the result, in the hope that we might see some better method of catching and handling such horses.

It was past mid-day before a herd of horses came in sight of the station, and just before they reached the narrowing way a stray pig unfortunately trotted across their path. The whole herd turned back and dividing into two or three lots, were soon past all recovery. The stockmen came in some hours after this, with exhausted horses, and it was evident that there would be no horses fit to try again for at least a week.

NEW ZEALAND

303.—Is the antipodes of England, yet there is no country in which an Englishman could so readily fancy himself at home, with its green fields, its hawthorn hedges, its comfortable looking dairy cows, its Hansom cabs, its toiling horses, its well fed saucy children, scolding women, and gambling men. It is within 1,200 miles of Australia, yet very widely differing from it. Rivers, swamps, snow clad mountains, water falls, and precipices, arrest the traveller's progress at very short intervals.

304.—Half a century ago an Englishman travelled in New Zealand with an abiding sense that he might any day or any night, constitute the principal dish at a Maori feast, and nine-tenths of the inhabitants of the country had never seen a horse. Now, mutton is so cheap that a Maori would not think a white man worth cooking, and horses are so abundant that shepherds and even stone breakers, ride to their work, and the Maories own more horses than they use.

305.—Even twenty years ago the inland traveller was oppressed and awed by an absence of animal life, and a dreary silence of the air ; now his ears are everywhere dinned from dawn to dark with the song of the skylark, which has proved only second to the rabbit for its destruction to vegetation, and its insuppressible fecundity. Hares breed from three to five young ones in a nest, and five nests a year, and grow too strong for the greyhound to overtake them, so that a country from which the gigantic Moa has perished, and which until recently had no quadrupeds, except the Cook imported pigs and rats, is now threatened with an excess of animal life, which outruns the more than wonted increase of mankind, and is unchecked by floods, frosts, drought or disease.

306.—Although light horses are now as cheap in New Zealand as in Australia, and very large heavy ones are cheaper, the New Zealand colonists have not yet forgotten the habits formed when horses were very scarce and costly, so that their horses are better broken than those of Australia, and the good old systems of England and Scotland are only modified with the greater cost of labour, and the time saving lessons of American horse tamers. As the young horses require no winter care, they are often entirely unheeded, until fit for work, and sometimes, though rarely, come to the breakers hands almost as timid and wild as those of Australia.

307.—The Maories have taken eagerly to the luxury of the horse's services, and whilst they watch and easily imitate all that they see done with him by their European neighbours, they go to work with him in their own way, and with their own resources, in a manner quite consistent with the courage, cleverness, and cunning, which has enabled them to hold their own in their own country as no other uncivilized race has ever done. The men who obtained all the lead they wanted to defend a fortification by showing up imitation Maories for our soldiers to fill with bullets, and who defied every general and every army by a skilful use of their native swamps, are not likely to be very much outwitted in the management of their own animals.

308.—It was in 1862 that we joined a riding party that was going on a sort of picnic excursion from Nelson to the lake and mountain country, in the interior of the middle island. Some ladies were in the party, to ride where ladies had never been before, so that we took pack horses, tents, and a great supply of blankets and changes of clothes, for the extreme altitude and temperature which we were to pass through. We started towards the end of November, corresponding in the South Hemisphere with the English May. This was known to be rather too early in the season for the altitude we were to reach, but we wanted to see the high mountain waterfalls, which few persons do see, because they dry up as the summer advances.

309.—These white waterfalls are far more beautiful, and six times as high as those of Niagara, though they only drain the winter accumulations of mountain tops, do not last long, and in the volume of water falling are not a drop in a bucket to the great American cataract.

310.—When nearly at our highest altitude in the neighbourhood of Tarndale, we found ourselves one morning completely hemmed in with snow. Our horses were none too well off in such a country before, and our first fear was that they would now get nothing to eat, but we soon saw that the short, thick-leaved spear grass which had given them so much trouble to walk through was now their staff of life.

Although most of the horses in the party had never seen either snow or spear grass before, we were much comforted to see that nature taught them to seize the strong sharp spikes carefully with their teeth, and pull them up by the root, then dropping the plant on the snow, they took it by the root, drawing the spikes behind and after devouring the root, dropped the tops of the spikes. The root has the smell and taste of a parsnip, and proved a very good food for the horses under very trying circumstances.

311.—We had pitched our tents some little distance outside a forest, or dry stony ground, so that we had some way to fetch our firewood. We had no draft harness, or harness horses with us, and our shod horses could not stand well on the snow. There was one well bred mare, named "Grace Darling," in the party, that had shown herself extremely quiet and tractable about everything, and that had such wonderfully good hoofs that she had not been shod, even for that rough journey.

As she was the most likely subject for instruction and could stand on the snow much better that the shod horses, we undertook to haul logs to the tent with her, by the use of such girths, straps, and ropes, as we could muster. This she did to perfection, so that we soon had large roaring fires in front of the tents, in which we heated large stones, which, when carried into the tents, gave us plenty of heat under our canvas, without the Englishman's chimney, or the Irishman's smoke.

312.—Throughout the whole journey no horse faced a rough river, or clambered a rock, or kept a track of brushwood over a swamp so quietly as "Grace Darling." On one occasion some of the most gallant gentlemen in the party, gathered some large bundles of a peculiar, dry, rattling grass, for the ladies beds, and put them on the pack horses to carry to our stopping place. The strange burden and noise alarmed the old pack horses and started them off, sending our pots and kettles flying on the track.

Only "Grace Darling" could be got to carry such bundles quietly. Indeed, nothing alive or dead turned up on the journey that "Grace Darling" could not be got to quietly receive on her back.

313.—On our return to Nelson we eagerly inquired who had broken in "Grace Darling," and were disgusted to learn that she had never been in a breaker's hands, but had been bred by a Maori, who broke her in himself. With all the pride of our race, we thought it impossible that there could be anything to learn about horse breaking from a Maori, especially as horses were comparatively new things to them. The Maori, too, who bred her, lived nearly 150 miles from Nelson. Still we could not get "Grace Darling" out of our head, and felt sure that there must be something good about the way she had been handled, and as we had to travel that way some months afterwards we determined to call on her breaker.

314.—We found a man worth seeing in every respect; a fine specimen of his fine race. A land owing chief, without any of the besotted appearance of those who have used their wealth of land to poison themselves with alcohol and to surround themselves with vicious flatterers.

315.—We had passed a small herd of lively fat horses on the road to his house, and in his yard we saw pigs, fowls, ducks, geese, and turkeys. In the fields children of all sizes, more or less naked, were pulling away at the teats of some comfortable looking cows. We had no complete knowledge of his language, nor had he of ours, yet we never felt more at home with a man at first sight. We both knew some leading words in the language of the other, and Maories are so clever both at giving and understanding signs that it is never difficult to converse with them.

316.—After a feed of very nice potatoes and peaches, we told our host what we had come for, at which the whole family seemed surprised and pleased, and the women especially laughed very heartily. They remembered all about "Grace Darling," though not by that name, and especially expatiated on her good hoofs. In reply to our inquiries, they told us that they knew very little about horses, that they had no stable, no yard, no whip, no straps, no breaking tackle of any kind, but they would show us next morning how they caught and broke in "Grace Darling."

317.—The chief then gave orders to the women to dress a little native flax, and to plait two very thick strong mats of undressed flax, the use of which in horse breaking we could not understand at all. The women went to work very cheerfully, and were evidently much amused at the curiosity of the "whity man" as to the use of such mats for horse breaking, and in bursts of laughter seemed to enjoy the thought of what we were to be shown in the morning.

318.—Next morning the herd of about 50 were driven into an adjoining paddock, and all but two were turned out of the paddock through a gate and across the river. One of the two that had been kept back at the river gate was on old quiet thing that was easily caught, the other appeared a wild unhandled colt. The herd of horses ran up the river on the North side, and the old horse was ridden up inside the paddock at nearly the same pace on the South side, followed of course by the colt. Near the house they were let out of a gateway and went near the river, opposite to where the herd had been stopped. The women and children now surrounded the old and young horse. The ground became softer as they neared the river, and we thought that both horses would get swamped. The boy got off the old horse, and led him to where a woman was standing with the strong thick mats. It was a strip of bulrush swamp, which is always soft at bottom. The woman laid down the mats and shifted them to the front of the horse as he walked alternately on each. Attracted by his companions in full sight on the other side of the river, and deceived by the success of the old horse on his flying bridge of mats, the colt took the same direction, when his legs disappeared in the swamp, and all further progress for him was rendered impossible.

319.—Rarey's plan is nothing to this. There were no legs swinging about to hurt any one : the colt could not batter his head on the ground ; the very babies could jump on his back with perfect safety, and they were not slow to avail themselves of the opportunity. Their little naked feet danced along him from mane to tail ; the women sat on him, the men got astride him, and put a little log under his tail, and handled his head and ears. When all had had something to do with him, and a great deal to say to him, the chief produced a very ugly looking overcoat, made of rough shaggy flax, and took it to the colt's head. He first rubbed his head and body all over with it, then beat or dusted him with it. The women shook their dresses in his face, and put their hands over his eyes. The chief opened his mouth and put his hands in it, and sat on his neck.

320.—Two men were now put to dig a road for the colt to get out, and others to fetch brushwood. Whilst they did this the chief put a piece of long strong flax fibre into the colt's mouth, and tied it loosely round the lower jaw. Another piece was put over his head and tied to the mouth piece, so as to form a complete bridle. A long line of the raw flax leaf was tied to the loop round the jaw, for a lounging line.

321.—As soon as a few feet of the soft black earth was removed from the front of the colt, and a brushwood and clay road substituted, the old horse was brought up to the river end of the road with a naked boy on him, and the colt driven after him, the chief holding the flax line.

The boy took the old horse into a deep quiet part of the river and brought him round again. The colt followed, getting a complete wash, which he much needed. They were then taken down the river bed to the gate, where the horses had been first separated, and entered the paddock, after which the old horse was taken away.

322.—The colt was now half led and half lounged, and was kept moving, not with a whip, but with a tree called a gin tree, which grows twenty feet long without a branch, and not much more than an inch in diameter at the butt, with thick narrow leaves at the end more than a foot long.

This was at first shaken at him, then put on him, then under him, then between his hind legs, and when he would no longer take any notice of it, a short stick was used in the same way, and then the hands.

323.—The old flax overcoat or cape was again produced, and was used in the same way that it had been in the swamp after which nothing seemed to alarm the colt. A saddle was put on, as easily as on an old horse, the old ugly cape was fastened to it, then a number of other soft materials, and finally one of the barefooted boys that had danced upon him in the swamp. No attempt was made to throw anything off, and we were obliged to confess that we had never seen a wild horse broken so thoroughly and so well in so short a time, and that without a scratch or a single whip mark.

324.—The same sensible treatment was followed up. All the tribe had something to do with the colt. Small branches were tied to his tail, and then larger ones, that dragged on the ground, until it was impossible to frighten him with anything, and we saw at once why "Grace Darling" had hauled the logs and carried the bed feathers so quietly.

NORTH AMERICA

325.—Is a great country in every sense of the word. It is especially great in steam engines, railways, horse cultivators and engines, horses, mules, or anything connected with locomotion. The largest section of the English speaking race is there, spread over a space that gives full scope to all their energy, and demands greater facilities for travelling than were ever needed within the narrow ocean bounds, in the island homes of their forefathers.

The dominant Scotch, the dignified English, the demonstrative Irish, the domesticated Germans, and the docile Africans are there, united in one country and one language, destined, perhaps slowly, to amalgamate as one race, but at present exhibiting all the diversity of character, and variety of pursuits, which, with its frigid, temperate, and tropical climates, its woods, oils, and minerals, make it a complete commercial world in itself.

326.—Who can pretend to have seen or to understand such a country. A resident in the hot summers and cold winters of New York could little judge of the mild and equal climate of San Francisco ; a dweller in Florida would know nothing of the ice and snows of Labrador. The man who has resided either North, East, South, or West, may get a very inaccurate idea of any other part of that great country, whilst those of us who have only travelled through them all, will be liable to all the mistakes which visitors so commonly fall into in their descriptions of any country. Our remarks on the horses and horse educators in such a country must be very general, and are advanced with a clear sense that they may not be so reliable as they might have been after a long residence in each part of the country.

327.—We have had something to say about the varieties of the horses that have found their way into and have flourished in North America ; our business now is to say something about their education. It has been claimed that the foals in North America are commonly better handled than those of England, on account of being more often handled by owners, or their owner's family. There is a good deal of truth in this, and a large proportion of the horses show that they have been kindly treated from their birth. Whilst both the writers and breakers of the country show that they never expect to meet with really wild horses. But good handling of the young horses is by no means an invariable rule. The farmers' sons and daughters are very generally good to animals, but we cannot say the same of the farm servants of that country, when compared with those of Britain. Too many of them are new to their work, and know nothing about either horses or cattle ; not a few of them are mere birds of passage, and very few attach themselves in the slightest degree to the animals on their master's farm, or appear to realise the kind of imaginary ownership in "our osses," which is still not unknown, and is so advantageous and pleasant to all parties, amongst some of the best servants under the best masters in Great Britain. This disadvantage is quite general and apparent enough, in North America, to outweigh the undoubted advantage of more general contact with actual owners, so that upon the whole we should say that the young horses of America are not better handled than those of Britain.

328.—In Canada and the North Eastern States the severe winters necessitate more or less attention to the young stock in winter, and wherever animals are artificially fed, they are of course never very wild nor difficult to catch. In the mild climate of California horses require little attention, and are proportionately wild, but even there, and still more in the Southern and warmer states, horses are surrounded with some dangers that do not exist in Australia or New Zealand, and are rarely left to run so entirely without attention.

329.—The professional, travelling, exhibiting horse breakers of the country call themselves horse tamers, but the name is not an appropriate one. They have, of course, no opportunity of showing their power as horse tamers, and all that we hear or see of them is, their great ability to cope with some exceptionally vicious or badly broken animals. Even if wild horses abounded in North America there would be no opportunity of producing them in all their original wildness before a city audience. The only difficult part of the taming would have to be performed before they could be delivered at Washington or New York. Anyone can kill a lion, or a rat, the only difficulty is to catch them. The extreme timidity of a wild horse is a totally different, often a totally opposite thing, to the insubordination of a "Cruiser," an "Anfield," a "British Ensign," or a "Duke of

Normandy;" and we fear that those whose real business is horse taming, do not always sufficiently remember that the treatment, necessary for the most daring, may not be right for the most timid.

330.—The horses of America, as a whole, are by no means badly broken. The average riders are less graceful in their seat than the English, less secure than the Australians. In harness, more horses are driven without blinkers and without breechings than in England, and more of them are wisely taught to let the vehicles they draw press or knock against their hind quarters without alarm. Such horses can be, and are, harnessed to carriages too frail to suit an Englishman's ideas of safety. The horses are not coddled and protected from every unorthodox touch, but taught to expect and to bear it, and the result is that they are safely driven in harness and in shafts that have a very flimsy appearance.

Inferior roads make weight of more consequence in America than in England, whilst the very superior character of the wood used makes it safe to trust to a very small quantity of it. To meet the roughest roads the wheels are high and the axles wide, and the drivers sit very low, showing that they have less fear of an unruly horse than of an unequal road.

331.—Jibbing is more common than in England or Scotland, but by no means so prevalent as in Australia. The extensive use of mules in the great civil war, as well as for shifting railway waggons, and other work requiring a long, slow, waiting pull, gives a visitor at least a suspicion that the horses are broken too hastily to be reliable at a dead lift. Hasty breaking is not compatible with steady pulling, and although each American showman has given us some almost worthless prescription for dealing with a horse that has been spoiled as a puller, none of them have clearly and strongly laid down the one golden rule by which all such spoiling can be prevented, and horses taught to hang on to a pull as long as mules (375). We do not underrate anything that saves time in the education of a horse, but we venture to say that anything that will prevent jibbing will save you more time in the end, is of far more consequence, and more worthy the earnest attention and patient trial of any nation.

332.—No class in America seems quite free from a mania for showy trotting horses. Some of the most aristocratic equipages may be seen to abandon the dignified eight miles an hour for a regular butcher's tear-a-way at sixteen miles an hour, whilst the ordinary farmers' sons will let their horses crawl, when out of sight, to prepare them for a fly past of the crowd. The effect of this taste on the horses of the country has not been very different, and certainly not worse, than the taste for galloping races in England. In both cases strong propelling hind quarters have been demanded, good heart and lungs, good pipes, good circulation, and good constitution. In both cases the strong, powerful, short knit, enduring horse has been sacrificed to one with weaker, because more reaching and lighter limbs. The ugly, ungainly, straddling action that allows the hind feet to pass outside the fore ones, is naturally tolerated by those who seek great trotters.

333.—The most common national fault that we noticed in the education of North American horses is the hardness of their mouths. In not a few cases the horses are taught to trot their best when the reins are tightened, and to stop when they are let slack. Drivers are constantly seen with the reins wound round their hands, and evidently doing the work that ought to be done by the traces.

334.—Several modern American books on the horse are very rough on the horse's mouth. With them mouth punishment is the general remedy for all vice, and is made too much the medium of instruction to the colt. In such books too we find instructions given as to how a horse's mouth is to be systematically hardened, and the animal taught to "pull up to the rein." Even in their public trotting matches, hanging on to the mouth seems to be regarded as an essential condition of making the best of a trotting horse. The same books instruct their readers how to teach a horse to stand stock still with a whip cracking in his ears. We must say that we prefer the old fashioned method of teaching a young horse to move for the whip and stop for the reins.

335.—So long too as persons generally use their right hand we can see nothing gained by the American and French system of meeting a vehicle by turning to the right. The danger to fast drivers is greatly increased by this departure from English custom.

CHAPTER XIII.

EXPEDITIOUS EDUCATION.

336.—The education of "Grace Darling" by the Maori chief (319 to 324), exhibits all the essential conditions of expeditious and complete horse education, in a form equally applicable to the most refractory or the most timid animal. There the horse had no opportunity of trying his physical powers against those of man, but was at the outset placed in a position in which he could neither hurt himself nor anyone else, and compelled to learn by the closest and most active contact with man in a variety of shapes, that man was not an animal seeking to devour him, but one that he might even allow to dance on his back without any serious result. We do not expect owners of horses to adopt the swamp discipline with the horse. Even if they could command all the requisites it might not be so harmlessly practised in every climate as in the mild temperature of a New Zealand autumn, but we should like to see every educator of the young horse show the same power to adapt their own resources, whatever they may be, to the conditions required to convey the necessary knowledge and discipline to the young animals in their care.

337.—The more wild, timid, and uneducated the horse may be, the more time will be saved by adopting some process by which he will be deprived of all power, either of resistance or flight, and be forcibly introduced to all the common objects of his prevailing fears. It would take a large volume even to clearly describe the various methods that have been recommended for this purpose, and we have already occupied so much space, by going into minute practical details, that we must avoid anything more that will alarmingly extend these educational chapters.

338.—All writers avoid the most difficult part of this subject, and take it for granted that the colt to be tamed is not really wild, and that he is already quietly fixed in a stable ready to allow you to handle his head, body, and legs, and put anything you please on them. As the great majority of our readers have never seen, and may never see a really wild horse, perhaps we had better follow the same course so far as to pass very superficially over the different ways of getting at such an animal.

339.—For an animal that has run wild and uncared for all his life, and dreads man just as much as he dreads a lion or a tiger, we know of nothing better than the Australian practice (296) of driving them into a strong safe yard, and putting a running noose over their heads with a pole. Two or three men may then hang on to the rope until the horse is garrotted, or brought senseless and helpless to the ground by stopping the supply of oxygenated blood to the brain. His legs must be quickly hobbled, the rope slackened, and then he may be treated on the ground to a similar education to that given to "Grace Darling" in the swamp.

340.—A half wild horse, that will not dash himself to pieces, may be decoyed by a tame horse to follow him into a smooth-boarded crush pen, where he can be closely hemmed in, gently handled and haltered, and get the necessary tackle put on him to lay him down easily, when let out into a yard or loose box.

341.—A still less wild horse can be jammed into a corner of a loose box, by getting him to push behind an old one, and then putting a long strong plank through a hole in the wall or other support on the left side of his shoulder; the long plank being held at the other end by a strong assistant. With a commonly quiet colt all that is necessary can be done by using the old horse without a plank. With nine-tenths of the English bred colts, even the old horse is unnecessary, and an experienced man may see at once that he has nothing to fear from the colt. But we would advise inexperienced persons to always keep an old horse between them and an entirely unhandled colt, so as to make sure that they will never have either to fight or to retreat from a colt at their first interview with him.

342.—Rarey's advice to take a whip with you and to cut a pugnacious animal on the hind legs when he turns his heels to you has done a good deal of mischief. It is a total violation of his professed principles, and although a man with his eye, courage, and experience could do almost anything with a horse, without getting or giving much harm it was by no means the best way for him to go to work, and was very bad advice to the general public. Most of his American followers fall into the same mistake, and approach the colt for the first time, in a way which they admit may possibly call for a fight with him with his own tools. Nothing makes a man so cruel and violent as fear, and for that reason, if for no other, we would always approach a colt in a way that implied no unnecessary danger. The presence of the old horse is calculated to establish a desirable degree of confidence both in the breaker and the colt.

343.—The horse that has never been handled, instinctively dreads the approach of your hand, just as he would dread the paw of a wild beast, so that before you attempt to put anything on him, you must show him that your hand has no sting, or claw, or tooth connected with it, or anything about it to hurt him. It is often easier and safer to do this by lengthening your dreaded arm by taking something in your hand and touching him with the end of it. It must be something quite smooth and pleasant to the touch. It matters little how long it is, as he will take it for a part of yourself, and you can shorten it by degrees until you are near enough to use your hand.

344.—Encourage him and meet him half way in the attempts he will make to touch your hand with his muzzle, as he will not be satisfied with it until he has done so. Then let him feel it on his neck, with a pleasant rub and pat. Rub backwards and forwards until you get to his head. Rub under and between his jaw bones, and then very cautiously round his eye, and don't leave his head until he will bear your concave hand over his eye without much impatience, as you will find that the best evidence of having gained his confidence. Don't grip him tightly round the lower part of his face, as so many persons do ; that obstructs his nostrils and always irritates a horse. Rub back over his back and sides, until you get to his hind quarters and can handle his tail.

345.—You may next get a halter in your hand. A leather halter with no line on it is best. Take it to his muzzle and let him feel it as long as he likes. Then touch his head and neck gently with it, taking care that no part of it falls or strikes against him, or touches his eye. Keep your hands behind rather than in front of his ears, and move them very slowly. If you use a common hemp halter, be sure that a knot is tied in the rope, so that the halter cannot draw at all tightly round his face, as that will irritate any colt. It can of course be opened very wide to pass over his face, and may be put on with a pole, but we do not like hemp halters at all.

346.—As soon as the halter is on, you can begin to rub the colt again, working back until you reach his tail. Take the hair of the tail in your hand and tie it in a secure knot. If there is plenty of long hair you can do this with the hair itself, giving the hair two turns instead of one before you tighten the knot. If there is any doubt about its security, and hair does not easily tie securely, make sure of it by using a little tarred string to secure the ends. If the hair of the tail is not abundant, some tarred string can be wound tightly round the end of the tail, instead of tying a knot, which is perhaps the best way in any case.

347.—Now take a light halter rope eight feet long, and tie one end of it to the left side of the halter, in a bow that will be easily untied. Bring the other end back to the tail, and dividing the hair into two equal parts, pass the line through it. Gently tighten, drawing the horse's head and tail both towards you, as you stand at his side, and fasten the rope round the tail as soon as it is tight enough to give the horse's head a very decided bend to the left side.

The neck should be bent enough to form about half a right angle with the body, that is half way between straight and square. With an ordinary full sized horse there should be about five feet of clear rope between the hair of the tail and the halter. This you may mark on the rope before you begin to draw it. You had better err on the side of being too slack than too tight with your first or any other pupils. So long as it is tight enough to enforce a very decided bend of the head to the left side it will do.

348.—Now take away the old horse and leave the colt to follow his own head and tail about the yard as he pleases. He will thus get his first experience with a halter where he cannot contend against you or anyone else. He has only his own tail to pull on, and that under circumstances that will greatly bewilder him.

349.—If he walks nearly straight on or round the yard, without making rather short circles, the rope is too long, and you had better bring back the old horse and get the colt in a corner, where you can draw the rope a little tighter. If on the other hand he turns round fast, in very short circles, the rope is too short, and the colt will be giddy and will probably lie down.. He generally comes down gently enough but may very likely hug the fence and get into an awkward place, and come down on the left side, where you cannot get at the rope. This is why we advise the rope to be tied to the head in a bow that can instantly be slacked, either before or after he gets down. He is almost sure to stop turning before he lies down, and then you can go to his head and slack off the rope.

350.—There is a very great difference in the tightness that different horses will require to be tied for this purpose. A well bred fine mouthed horse will turn round freely with a line that bends his head very little. An unhandled colt will usually require to be tied more tightly than a horse that has been taught to lead, and a cart colt more tightly than a thoroughbred, but no certain rules can be given on the subject. We have seen the clear length of rope vary from two and a half to five and a half feet.

351.—This is a very quick way of subduing a horse for any purpose. A horse bad to handle, bad to mount, bad to shoe, or determined to get his own way, can be subdued by this practice in a few minutes, but it is not a very satisfactory way of going to work for educational purposes, as it partakes something of the same nature as drugging or starving, or wearing down a horse, or in any other way disabling him. A horse so treated is subdued for the time being, but is not really educated, and is seldom reliable when full health and vigour are restored. Like Rarey's system, it compels a horse to submit to contact with many alarming objects without delay, but unlike the simple act of laying him down, this circling muddles the horse's head, and although it makes him very submissive for the time being, its permanent effect is uncertain, and seldom satisfactory in an educational sense. For some purposes it is a useful and easy piece of discipline, and we shall have occasion again to refer to it.

352.—Rarey's system of putting down a horse has been considerably improved on by some of his disciples. His plan was to strap up the left fore leg, by bending a strap once or twice round the left pastern, and then lifting the foot, buckle it tightly round the arm. Then put the end of a long strap round the pastern of the right fore leg, and bringing the long strap over the back, or through a surcingle strapped round the body, draw up the other fore leg as soon as the horse lifts it from the ground. This brings the horse somewhat violently to his knees on which he may possibly, though very rarely, stay ten minutes before he will lie down on his side.

353.—A much better way to put a horse down is to take him to some high or open enclosed place, free from all single posts or obstructions that a horse could strike against, with deeply covered soft floor of tan, short straw, or dung. The enclosure should not be less than twenty-five any way. A dry, ploughed field, or a soft meadow is still better in fine weather. Put either a surcingle or a rope round his girth, with an iron ring about two inches diameter, on the wither, and another below, at the bottom of the girth. The surcingle, or rope, must be fastened back, with a crupper, or by a small rope passed through a large piece of strong soft rag, tied round the root of the tail. Now take a small strong rope, about 20 feet long, and tie one end of it round the lower jaw, quite loosely, but with a knot that will neither give loose nor draw tight. You next take the rope up the left side of the horse's face, and down the right side, putting it through the loop on the jaw, and carrying it back on the right side of the neck, through the iron ring at the wither, bring the slack down on the left side.

Take a strong hame strap, or any plain strap, about 12 or 15 inches long, put it round the left fore pastern, with the buckle outside, and passing it through the keeper, so as to form a loop, draw up the foot, put the end of the strap through the ring at the brisket, and buckle quickly.

354.—The horse is now on three legs. Take the rope coming through the ring at the wither, put on a pair of strong rough leather gloves to save your hands, and pull steadily and firmly, but not violently to draw the horse's head to the right, standing well away from him on the left side. After a little struggling he will come down quietly on the left side, and must stay there until you loosen his head. If you are without an assistant you may fasten the head back to the ring at the wither, whilst you reach over and strap up the other leg. He will lie more easily if his head is then loosened; he can only rise to his knees at the worst, and this you can always prevent if you have a quick eye and keep the rope in your hand. Do not trust yourself amongst his legs, as a prostrate horse can strike very violently in his struggles, but you can safely do anything by standing at his back and reaching over his body.

If the horse whilst standing is too wild, or restive, or vicious to give his fore leg up easily to the strap, a soft rope with a loop may be thrown round the pastern, and brought either through the lower ring, or between the surcingle and the body, drawn up and tied. It is not necessary or even desirable, that the foot should be drawn up very close to the horse's body under this arrangement, although it requires to be tightly strapped round the fore arm, when Rarey's plan is adopted, or it will not be secure. When so strapped the circulation is impeded, the leg is often benumbed, and cannot be depended upon for some time after it is let down.

355.—Instead of the jaw loop bridle, which we have recommended, for twisting the horse's head when putting him down, some American writers have advised to tie the end of the long rope round the neck, and then passing the rope from the neck into the left side of the mouth and out at the right side, bring it back on the right side of the neck, through the ring at the wither. This is effectual in twisting the horse's head although we have not found it more effectual than the loop bridle, and it has some serious objections. Unless the rope is kept tight the horse easily gets it out of his mouth. It is very rough on the angles of the horse's lips, sawing them severely, and making them first sore and afterwards callous. It is so painful that it diverts the horse's attention from his lessons, and like a twitch, prevents him from noticing anything else. The loop round the jaw is only painful as long as the horse pulls on it, and is easy directly he yields to it. No soreness is likely to be produced by the loop bridle, and if a little friction does take place, it is not on the same nerves that will be used by the iron bit, and has not therefore the same tendency to harden the mouth.

356.—This same loop bridle may be used for any purpose where it is desired to have good control over a horse, but for leading a horse on the usual or left side the rope attached to the loop must be passed up the right side, and brought over the head at the back of the ears, and down the left side, through the loop round the jaw. Without being painful this will be found preferable to any other bridle for leading or holding a horse under fear or excitement. It is also the best bridle for leading a horse by the side of another, or behind a carriage.

357.—By an additional turn round the head and under the top lip, it can be converted into an irresistible check upon the movements of any horse. This is done by putting a second turn of the same rope round the head, the upper part of which rests like the other behind the ears, but the lower part presses on the outside of the gums of the upper jaw nippers, that is outside of the gums of the upper front teeth, and inside of the heavy upper lip. In other words, the rope that comes to the hand through the loop in the loop bridle, is bent back under the lip and over the gums, then passing up the right side of the face, behind the ears, it comes down the left side of the face where it completes a second circle round the head, by taking a bend round the rope at the point where it passes from the jaw loop to the lip and gums. A pull on the rope thus bent round that junction, will press both on the lower jaw, and on the sensitive and unprotected nerves, inside of the upper lip. Such a ferocious instrument is not to be thought of for any young horse, but offers an effectual means to control any animal that may have got beyond ordinary restraints.

This bridle will make the most vicious and headstrong horse as powerless as a gouty man with his toe in a vice. If added to the bewildering effect of a little circling, and the exhaustion of a struggle, either on his knees or on three legs, it will subdue a "Cruiser" with the exercise of less skill, courage and patience than is demanded to gain the confidence of a nervous unhandled colt.

358.—The treatment which the horse should receive when on the ground will depend upon the object for which he has been put here, upon what the horse is, and what he is intended to be used for. In case of a young, wild, timid horse, put down for the first time, the first aim must be to give him some little confidence in man, to lessen his natural paralyzing fear so far as to enable him to give some attention to the objects around him. The first impression that his nature will give him will be that you are going to devour him, or tear him to pieces. This is the first idea that the horse entertains about most strange animals that attempt to approach him or that have succeeded in getting hold of him. It is this fact that causes the wild horse to soften his whole attitude so much to man, after one forcible contact with him, even though that may not have been entirely harmless to him, and to have more confidence in the individual man who repeatedly puts him down and handles him on the ground than he has in any man with whom he has come less closely in contact.

Your first business therefore is to show him that you have no desire to hurt him, and that he may allow you to stand or sit, or lie on him, and to pull him about in any part without any pain or harm resulting. All his senses must be reconciled to your presence. He must see you, hear you, smell you, and feel you, and that not on one side only, but on both sides, and about every part of his body. Only experienced persons can have any idea how completely wild a horse or cow can be left on one side after being quite tame on the other. All that was done by the New Zealanders to their colt in the swamp (319) may be done here. All that will be necessary to reconcile him to the touch, or sight, or sound of any description of harness, or of any vehicle may now be practised on him. The sensitive skin inside his hind legs may be freely handled. All his superstitions about taking liberties with his tail must be overcome. Show him that you can even handle his sensitive lively ears, and his delicate eyes without hurting him, and that he must trust you to do so whether he likes it or not.

359.—One of the most expeditious and effectual means of reconciling a horse to the application of all foreign bodies is, to get a large piece of cloth or sacking, free from all buckles or buttons, or hard seams, or anything that would hurt him, and swing it roughly, with plenty of flourish, about every part of him. Beat him all over with it, throw it at him, cover his head and eyes over with it, and effectually show him how harmlessly it may be brought in contact with even his most ticklish and tender parts. When reconciled to the cloth, get various kinds of skins or furs, and use them in the same way.

360.—Every article of male or female dress may be exhibited and placed on any part of the horse, or the most glaring or hideous costumes may be worn by those who ride on or scramble over him. Take off your hat and swing it about his head, and put it over his eyes. Do the same with your coat. Throw your arms and legs about, near his head, and roll over on the ground. Roll a bale of chaff, a barrel, or large logs near him. Wheel a wheelbarrow, a bicycle, or a perambulator in his sight, and any other common or uncommon object to which you wish him to be reconciled.

361.—You may next educate or "gentle" his ears, by producing close to him every possible variety of sound. A drum, some large empty tin, an iron tank, or any other noisy article may be beaten round and about him, and give him every possible description of rough music. Strike matches and fire fusees or pistols close to his head. Rattle chains or any description of harness about him. A bell, a watchman's rattle, or a box with a few loose stones in it.

362.—Put harmless articles under his tail, and pull his tail about in every direction. Handle the inside of his thighs, or any sensitive part about which he is likely to be ticklish, and particularly practice handling him on any part that you know he has objected to being touched. Sit on his back or side, stride him, crawl over him, put bridles of various kinds on his head, and take them off repeatedly, and don't leave him until he is thoroughly gentle about his head. Lift his hind legs about with a pole, or pull them with a strap, or soft rope or webbing, and put various articles between them, always repeating anything that he resists until he quietly submits. If he wilfully tries to kick you, which very few horses will do when down, get half a sack of straw and dangle it about his legs as long as you can get him to kick at it. Don't mistake mere struggling for wilful kicking, as, although it may be quite as dangerous to you, it is not a vice, or anything that you need or can deal with.

363.—The more comfortably the horse lies whilst all this goes on, and the less his attention is diverted by any bonds or pain, the more he will learn. You should therefore attend to his comfort, and use as little restraint as will keep him where you want him. Most horses will make some resolute efforts to rise at first, so that you will require to keep a watchful hold of the rein for the first five minutes or so, but by that time they generally give in, and often so completely that it is difficult to get them to rise when you want them to. With a merely timid animal it is best to keep them quietly down whilst you go through all the above lessons, and then unstrap their legs, give them their head, and let them get up easily.

364.—If on the other hand you are dealing with a refractory, resolute, determined animal, whose confidence in himself you want to lessen, protect his knees well, strap up both his fore legs, give him his head, and let him get up and struggle on his knees as long as he will.

This will exhaust him very much, and wonderfully lessen his confidence in himself, and increase his respect for you. With such a horse you must be very careful to have no unsuccessful fighting. For instance, if he gets his head and springs to his feet before you have got the second fore leg strapped, don't attempt to resist his doing so. Let him get up without interference, and take a dance on three legs if he likes. Then put him quietly down again, without any hurry, bluster, or hard work. Don't let him see you in a hurry or putting out your utmost strength. When both his legs are strapped you may let him rise to his knees, and sit down and watch him as long as he likes to keep on them. It will not be many minutes, and he will be covered with foam when he at last resigns himself to lie helplessly down. The advice usually given to push with all your might at his shoulder is worse than useless. The straps will do all the work, and the less you do the better.

365.—The mere act of putting down will be a wholesome lesson to any refractory horse, and may be repeated as often as necessary. The more often he is put down, the less resistance he will make to it. If very often repeated he will get to lie down without strapping up his leg, as soon as you pull his head on one side, and eventually will lie down at the word of command, or with a gentle touch behind the knee. This, however, is not a desirable accomplishment to teach a horse for ordinary purposes, and a few proofs of your power to lay him helplessly at your feet whenever you please, will usually be sufficient for the most refractory horse.

366.—Nearly all that we have advised to be done to the timid horse, whilst on the ground, should be repeated when he returns to his legs. Begin with him first on three legs. Place smooth harmless objects under his tail, and give him plenty of pulling and handling between the hind legs. Then let down his foot, and whilst he is either well held or tied up, or tied to his tail (347), work a smooth pole all over him, and especially about his hind legs and tail. Continue this without hurting him as long as he resents it in any way, and never think of attaching any horse to any kind of vehicle until you have made him quite indifferent to the roughest, harmless handling about his hind quarters. Push the pole on every part of the hind legs, and bring it against the horse in every way that it would be possible for the cross bar of any carriage to run on him, and use the pole on his sides, just as the shafts of a carriage might strike on them. Do this first whilst the horse sees it all, and then put on a pair of blinkers, and repeat everything when he cannot see it.

367.—Aim to do all this without starting the horse to kick, but if the horse is bent on kicking, as mares especially will sometimes be, don't abate one jot of the poling on that account, but rather be careful to do it more thoroughly. Let him do all the kicking you can get out of him, where he can neither hurt himself nor anyone else. This may possibly take a long time, but never so long as it would take to cure him of kicking after he has once hurt himself.

Why should you put a horse into shafts with wood, iron, and wheels fixed in dangerous proximity to him, thus giving him an opportunity to run away, or to smash himself and the carriage to pieces, when you can certainly and completely reconcile him to every kind of friction, sight or sound, without running any such risks? A horse that has once run away, or kicked, or hurt himself in harness, is never again the same safe trustworthy horse under all circumstances that he might otherwise have been made.

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CHAPTER XIV.

THEORY OF BREAKING TO HARNESS.

368.—Breaking the horse to harness is a more important, world-wide work than even breaking him to saddle, not only because a much greater number are used in harness than are used exclusively in saddle, but also because the labour of the harness horse contributes far more to the national wealth of most countries, and his commercial value is more capable of being definitely and almost universally increased as a drawer of weights, than as a carrier of living burdens. It would be difficult to over-estimate the increased value that might be given to the harness horses of the world, or the amount of suffering and ill usage that might be saved to the animal itself, if his instructors and drivers generally understood their business, and came to their work duly impressed with some knowledge of the natural instincts of the animal they so commonly spoil with their ignorance, impatience, and unreasonable cruelty.

369.—It no doubt will sound a rash statement to most of our readers when we say that what are called "false," "baulking," or "jibbing" horses, all of which names are given to horses that will not pull at anything that does not come with a first effort, and that not a very resolute one, are all without exception made what they are with bad teachers and drivers, or to speak more correctly, for want of good teachers and drivers. Whilst there is an immense difference in the nature of horses in this respect so that some will go wrong without the greatest care, and others go right in very careless hands, it is nevertheless true that any unspoiled horse can in time be made to pull again and again, and any horse can very soon be treated so that he will not pull a second time. No one can completely cure a horse that has by ill usage ever been taught to jib, but careful, reasonable, patient treatment from the first, will prevent any horse from being made a jib, however naturally inclined to be so.

370.—There is a remarkable peculiarity about the instincts of a horse which puts him easily, completely, and helplessly in our power, adds immensely to his value as a servant of man, and to the pleasure and ease with which the most feeble and timid riders or drivers are enabled to exact his utmost services.

We gladly and very largely avail ourselves of this well known instinct, in the many cases in which it serves our purpose. We too often ignore its existence, or savagely, mercilessly and stupidly attack it, where it adds a little to our difficulties. We find it convenient to see the powerful quadruped so unconscious of his own strength, as to stand all day kept from company, food, water, and every enjoyment, because he will not try to break a slender rope ; and we expect, as a matter of course, that he will let a little child guide him from his pleasure to his work, or allow a lady's hand to restrain him, when either fear or animal spirits would send him off at a reckless gallop, but we beat and torment him mercilessly when the same want of confidence in his power prevents him from pulling again and again at a chain by which we have fastened him to some object which he believes to be immovable, and which is really far less easily moved than the child's arm or the lady's hand.

371.—In our utter thoughtlessness about the nature of the animal we undertake to instruct, we too often jump to the conclusion that the horse will know that he is wanted to pull forwards steadily into a collar, and that he is not wanted to pull backwards at his halter. How is he to know anything of the kind when his nature tells him just the reverse ? When he finds himself entangled nature tells him to back out of it, not to rush farther into it. We have seen hundreds of wild horses caught and entangled in various ways, but we never remember to have seen one that expected to get out of his difficulties by a steady pull forwards. A rush backwards is generally the first and most persistent effort, but if nothing gives way in one direction another direction is soon tried. If we saw a horse that had rushed into a thicket which would not yield to him, we should think him a most stupid animal if he kept on pushing further into it, and did not at once back out of it. Now what is the collar to him but an unyielding thicket, through which he sees no chance of thrusting his large body, but out of which he believes it possible to draw his little head. He knows nothing of our language, or why we beat him, and is just as likely to suppose that we beat him because he does not go backwards, as because he does not go forwards, especially as we actually do beat him for either purpose when it suits us. He knows nothing of mechanics, or of the facilities which wheels offer to motion.

The big carriage looks far less moveable to him than the little manger to which he is so easily tied, and his first hasty forward rush having been checked by traces far stronger than the rope of the halter, he comes to the conclusion that to attempt to move forward would be hopeless, and that the best way to escape from beating or persecution will be to plunge backwards out of the restraining collar.

The more gentle, and tractable, and timid his disposition, the less likely he is to pull steadily and continuously in any direction, and especially to make a continuous lean forward. Hence we find that the most lively and gentle horses are generally jibs, under bad treatment, whilst dull, unexciteable, headstrong horses are more likely to be steady pullers.

372.—It is too commonly taken for granted that the horse does not pull at his bit because it hurts him to do so, and that he will pull in his collar because it does not hurt him. This may be a natural mistake, but it is a mistake, and a very great and misleading one, and one that should not be fallen into by anyone who has thoughtfully studied the peculiar instincts of the horse. We have seen (180) how prone the horse is to submit to martyrdom, and that severe pain has often the opposite effect upon him of what it would have with an animal of more reasoning power, or with more accurate instincts. We may here give further examples of this peculiarity.

If we tie a young horse up with a broad leather strap round his neck, so that when he pulls violently back it will restrain him effectually without hurting him, he will often not pull a second time, but if we tie him up with a chain that cuts into his neck, he will generally pull at it again and again, and not unfrequently until he kills himself. If we fix a bundle of straw behind a kicking horse, he will not kick long at it, but if he cuts his legs at each kick against the splinters or iron work of a carriage, he will probably kick as long as he has a leg left to kick with. If we carefully take off a young horse's bridle, so that the bit comes out of his mouth without hurting him, he will soon quietly help us to take it out of his mouth : but if in taking off a bridle, we awkwardly twist the bit so as to seriously hurt his tongue or jaws, he will for months or years afterwards pull violently on it whenever he finds the slightest hitch about it. The horse that has again and again been put into the collar, and finds that no harm comes of it, gets at last to suspect none, and takes it easy under all circumstances, but if he gets seriously beaten or hurt, in any of his early lessons, he is always ready to expect some great calamity in connection with a tightly pressing collar, and will stick up to receive any amount of punishment in the most unexpected and unaccountable manner, whilst each beating that he receives will cause the habit to be more confirmed, and the sticking up to be more frequent and more obstinate.

373.—There are other strange facts in connection with the horse's habits, which it is desirable to understand in dealing with him. Thus, if he hurts his neck or head in pulling back, he will pull back the more, but if he hurts his tail in doing so, he will often not pull back at all ; on the other hand, if he hurts his tail or legs by kicking, he will kick the more, but if he seriously hurts his mouth by doing so, he will not kick again. By carefully observing the peculiar instincts of any animal in our charge, and meeting them with our superior reason, we can make the horse our obedient servant without being our tortured victim ; we can cure most of his bad habits and secure our own safety by some simple stratagem ; we only convert his eccentricities into real dangers, and abandon our natural superiority when we attack them with savage cruelty.

374.—No horse would guide easily and pleasantly to a bit that hurt him much. It is not because he has ever been hurt by the bit, but because he has been taught that he cannot resist it, that he yields to it with the gentlest touch; and the ease with which we have taught him that, should make us expect that the same animal will only be too ready to believe that the collar is at least equally irresistable.

375.—It is only necessary to think thus reasonably of what the horse's nature really is, to see the course that we must adopt with him to get him to treat the restraint of the collar in exactly the opposite way to that in which we wish him to treat the restraint of his neck tie, his halter, or his bit. We have made him believe that he must yield to the bit, by tying that bit to an unyielding post, we must now make him believe that the collar will always yield to him, by tying it at first to something that will always give way to the very gentlest push against it. FOR THE SAME REASON THAT THE YOUNG HORSE MUST NEVER PULL SUCCESSFULLY ON A BIT OR A HALTER, HE MUST NEVER PULL UNSUCCESSFULLY ON A COLLAR. This will be found the simple and all-sufficient key that, properly used, will make any horse a steady puller.

376.—Many very gentle horses will stop for a slighter pull on the traces than would stop other horses on the reins. The weight of a finger may be too much for their first pull; but by degrees the resistance may be increased until we have so entirely altered their nature as to get them to pull quietly and repeatedly, without fear or impatience, at a collar which they cannot move at all. Very few horses are ever brought to this state of perfection as pullers, because very few are ever treated with the long persevering patience necessary to produce it. Once whip or hurt a horse at what he cannot or does not know how to pull, and you have ruined him as a puller for life. He will ever afterwards be more or less impatient and restive whenever he finds himself in a similar fix. Very few things are more contrary to his nature than to try again and again at what he cannot move, consequently very few things are more difficult to teach him or more easy to unteach him. We can in a single day teach him to stop or to turn for a bit in hands that have no power over him if that power were disputed, or to give up his much prized liberty to the restraint of a rope that he could break with half his weight; but it may take months to give him so much confidence in his own power as to induce him to exert it, patiently and repeatedly, in one direction, long enough to remove a heavy resisting object, and one minute's thoughtless passion may render this ever afterwards impossible. This want of confidence in himself, which tells so much in our favour in every other direction, is very inconvenient here; but surely we ought to deal patiently with a weakness by which nature has placed the horse so helplessly and completely in our power.

377.—We have spared no space to make this subject as clear as possible to all our readers, because it is the most important subject in connection with the treatment of the horse, and one which, if clearly understood, and consistently and patiently carried out, would add many millions sterling to the value of the harness horses of the world, and increase to an incalculable extent the comfort, safety, and mutual confidence of horses and their drivers. Daily observation, too, in every part of the world but too plainly shows how little the subject is understood, and that nine out of ten drivers still expect to cure a horse of jibbing by the very means that have made him a jib. We could add volumes of facts to illustrate the correctness of our theory, and give hundreds of instances to show how certainly the most unlikely horses can be made perfectly reliable at a pull if properly treated from the first, but each reader's own experiments will satisfy him better than any records of ours.

378.—The education of the young horse, intended for draft, may be the same up to a certain point as if he were intended for saddle. All the careful, patient training we have advised (183 to 272) may be advantageously spent on any light horse, but the more hasty methods (336 to 367) will answer quite as well in preparing the horse for harness as for saddle; and with the horse for slow, heavy draft it is useless, and even injurious to spend much time in giving the animal the fine mouth and gentle habits required for a pleasant saddle horse. The average carter or plough man, accustomed as they are to horses whose mouths have been case-hardened, would call an animal with a fine, sensitive mouth a useless fractious brute, and would be almost certain to make such a mouth the means of perpetual torture to the horse, and of spoiling him as a steady puller. For this reason, and for several others, we will treat separately of breaking to light and to heavy draft.

CHAPTER XV.

BREAKING TO LIGHT HARNESS.

379.—The horse intended for light, quick draft should first be taught to handle quietly and lead well (188), and to bear a crupper quietly under his tail (190). Put on a strong bridle, with large secure side guards and strong nose band, and to the left side of the bit buckle a leather strap, long and strong enough for a lounging line. Choose a collar with soft, even face, and one that fits the colt well. It must not be wide and loose, nor must it be so short as to press on his wind pipe. The skin of the colt's shoulder is as tender as that of a hand unaccustomed to hard tools ; and although, like a rower's hand, it will harden to almost anything by degrees, a great deal of time is lost, and a permanent blemish often inflicted if the skin is blistered, or the hair rubbed off at the commencement of the horse's work. The collar should be the same as the colt is intended to work in, as a change of collar always demands time for another hardening of the skin in a different place, just as we find on our own feet with a change of boots.

380.—Let the colt take a turn round you with the collar on, and, if he is at all alarmed about it, keep him moving until he cares nothing for it. Add the other articles of the harness he is intended to wear, one at a time, and walk him about, so that he can see them moving on him. Tie the breeching rather tightly to the collar or tugs, so as to accustom the colt to the pressure of the collar on his shoulders, and of the breeching on his thighs. Walk and trot the colt round you, in full harness, until its appearance, pressure, or movements entirely cease to alarm him. Then attach two reins, or light leather straps, about twenty feet long, to the collar or hams, and get a steady, reliable assistant to lead the colt whilst you take the loose ends of the trace reins back behind the colt. Hold them wide at first, so as hardly to touch the colt's sides, whilst he leads the colt about, and gradually press them on the sides, and lean a very little weight in the collar. The lean may be very gradually increased as long as the colt walks freely and unhesitatingly on with his head down, but the pull must be lessened if the colt carries his head up and his ears back, and the straps must be slackened off altogether if the colt shows the least inclination to stop with his pressure on his collar. If he does stop, get him started again. without the slightest weight on the straps, and when he is freely going again, let the pull on the straps be very gradually and cautiously applied, so as not to stop him again. Increase the pull gradually, until he walks freely away with all that you can hold back. Keep him going at a slow walk fifteen or twenty minutes. Then stop him and try him at a start, with a very little weight in the collar, holding yourself ready to slacken off instantly if there is the slightest hesitation about starting it. Continue this more or less cautiously as you may see to be necessary, until the colt will start unhesitatingly with forward ears and a low head, all that you can hold back. Never urge the colt into the collar in the least, but give him slack straps wherever there is the least sign of a stop, or any hesitation about starting.

381.—When the pulling and starting have been made quite satisfactory place one of the straps so that the colt will step over it with one of his hind legs, thus putting it between his hind legs. Then whilst your assistant leads the colt on, holding his head securely, you may very gently tighten the strap, first on the inside of one leg, then on the other, sometimes low down at his heels, then high up his thighs, but never rubbing hard enough to hurt him. It is better if this can be done gently and soothingly, and the colt reconciled to the line amongst his legs without a kick, as most colts can be, but whether he kicks or not the strap must be rubbed against all parts of his hind legs, inside and out, until he becomes quite indifferent to it.

382.—Having progressed so far with an open bridle. you may next take it off and put on blinkers, and repeat in the blinkers all that you have done before with the open bridle; that is teach your horse to pull kindly in the collar, start, and bear the reins amongst his legs without seeing what is behind him. If more convenient the blinkers for this purpose may be put on over the bridle.

383.—Now get a light smooth pole, about ten feet long, and touch and rub the colt all over with it. Begin on his neck and shoulders, come over his back under his belly, down his hind legs and under his tail. Give the hind legs and tail plenty of it, and when he takes no notice of rubbing on the legs, give him some hard pushes with the side of the pole, just as the cross bar of a cart or waggon would push on him without a breeching. When he cares nothing for hard pushing, give him gentle knocks in the same direction, and increase their velocity up to the point of almost, but not quite, hurting him. Your assistant should of course sooth and pat the colt whilst you are doing all this, and you should stop and do the same occasionally, and take as much time about it all as you see necessary, which may be little or much according to the nervousness of the colt. Take any length of time about it rather than start him kicking, but if he will kick with all your care, make sure that he does not strike your pole or anything else. He will not kick long if he finds that he cannot strike anything, and that nothing really hurts him. When all outside movements cease to alarm him put the pole gently between his hind legs, and rub and gently tap them on the inside. When quite reconciled to that, stand behind him and ply the pole well on his sides, just as the shafts of a cart would knock against them. All this had better be repeated on the following day, and indeed until the colt will take no notice of it, or would stand it all without holding. Even after that it would be well to tie him up occasionally, and give him plenty of poling, as you cannot make too sure that he will not be alarmed about a shaft, swingle-tree, or cross-bar, touching him, when he is in a position to hurt himself and others with his fear. Many a horse has been ruined and many a life sacrificed for want of this precaution. It is almost equally important that no such movements should drive him rashly into the collar, when first hitched to any carriage, as they might produce exactly the same practical effect as whipping a colt to the collar.

384.—For the next lesson you take off both bridle and blinkers, and put on a strong nosebag halter, to which attach your long leather lounging line. Take the colt alongside of any quiet horse, or pair of horses, drawing any kind of wheels, in a field, common, or some quiet place, where you are not liable to meet any objects that will very much alarm the colt. Put the colt on the right side of the old horse or horses, and draw your lounging line under the strong saddle or surcingle on the old horse's back, leaving the colt about a yard of loose line. Take the loose end of the lounging line up in the carriage with you, along with the old horse's reins, and start them both off together. If the colt runs forward you must shorten his line a little to prevent him getting in front of the old horse's head if he pulls away to the side, or hangs back, you can give or take line to prevent any breakage. He will thus get his first experience before wheels and other objects of alarm, without being driven into a collar with a force that would be sure to produce a recoil, and thus give him the impression that the collar would not yield to his efforts. Get the old horses off at any steady pace, and keep the colt walking or trotting beside them. He will be a little frightened at the wheels behind him at first, but that will not last long, and he will soon let the traces of the old horse rub against his left side without alarm. When quite reconciled to the right side, put him on the left side, and go on as before. When he is on the left side it will be safe enough to drive him on any wide quiet road. The more practice he gets in that position the better ; eight or ten miles is generally enough, but some free timid horses require more. Their traces should not be fastened to any carriage of any kind, until they are quite reconciled to walk before it, and show no alarm at any faster pace.

385.—When you have thus made sure that the colt will pull a little, and that he will not be driven to any desperate acts by the sight, or sound, or feel of a carriage behind him, he may be considered ready to put into a break or some other carriage. For this purpose you should have the assistance of a good horse, and at least one good man. The horse should be perfectly quiet, yet free and willing, and always steady and true at a pull. There is nothing so infectious amongst horses as jibbing. Far better to break the colt in without any other horse than to put him alongside of a jib. Your man should be good tempered and have courage enough to keep his senses about him, and to keep away the too common apprehension that every horse is full of some wicked designs upon him. Your break, or carriage, should be light, and you must see that it is put in a clear open place, where no stopping or turning will be required, and the wheels on hard ground where they will start easily. See that pole straps, and every article of harness, are in their right place, and both horses securely and comfortably harnessed with reins and everything else in good order and correctly adjusted. We have never known an accident or mishap that was not the result of some deficiency in these precautions.

386.—Have no talkers or alarmists about you. Put the old horse in first, on the right side, and with a chain attached to his bar, short and strong enough to allow him to draw the carriage without any assistance, and even with some resistance from the colt, though none is likely from a colt prepared as he should be.

387.—If you have good assistants you had better get up and take the reins as soon as the colt has been placed alongside of the pole. Let one assistant stand before his head and hold the colt in a way that he will hardly feel or know it, not with a trembling, flurried hand shaking each side of his mouth. Let the other assistant first fasten the pole strap and then the reins, and you must see that all is right and clear before he fastens either of the traces. Then let him fasten first the right and then the left trace quickly. The moment this is done your best assistant should come from the front to the side of the colt's head, whilst you give the old horse the signal to start, and your assistant gently restrains the colt from rushing into the collar until the break is well started. He should run beside the colt until he sees that he is not wanted, and then get up in the break without stopping. Get off at a slow pace if possible, but it is better to go fast for a little way than to check the colt rashly.

388.—Avoid anything that the colt has not seen before, or anything likely to drive him too eagerly into the collar. If he will work hard at it he must not work long, or he will blister his shoulders. In that case do not drive him more than two or three miles, before you take him out. If he takes matters very quietly and does not pull hard, and the carriage is very light, you may drive him five or six miles. Take him out carefully so that he gets no alarm, as if anything frightens or hurts him in his first experiences it is very difficult to make him forget it. When you take off his harness wash the skin that has been under the collar, and when washed put a little salt and water on it. When the hair has had time to dry, look carefully at it, and see if there are any spots on the wearing parts not as dry as the rest. If such spots are there the skin has been rubbed too hard, and the colt must not be put to draw again for a day or two. You should look to the collar and see if there are any corresponding lumps on it that want attention.

389.—If proper care has been taken to have the collar small and smooth, and soft enough to begin with, the colt will most likely be fit to work a little every day, and should have the distance gradually increased as his skin hardens to the work. His shoulders will stand more work if you put on a soft, woollen, rush collar every alternate day. After three or four days on the left side, on frequented roads, the colt may be put on the right side, taking care to meet any alarming objects with him at a respectful distance at first. Keeping him too long on one side is liable to give him a one-sided mouth. If his skin fails at collar work, and he is inclined to be free and restive, he should be driven occasionally alongside of the old horse without any traces, with only the halter on his head as at first (384). Never let him stay a day altogether idle in the stable, and give him very little corn until he can do steady work. The exercise can always be contrived so as to teach him something.

390.—After a few days work, without blinkers, you may take blinkers out with you. and let your assistant put them on the colt's head, over the bridle, after the colt has gone a few miles. The blinkers may be taken off again before you take the colt out the break. On the following day the colt may be put in and out with blinkers on, and continued to work in them if it is intended that he should do so. No horse is safe to drive, nor should be considered broken in, that has never seen wheels and carriages close behind him. The slightest accident to the blinkers will produce a catastrophe with such a horse, and it is a fraud to call him broken in.

391.—Although there is room for a great difference of opinion, we think, after a great deal of experience with both, that it is safer to drive a high-conditioned horse with blinkers than without, and especially that it is safer to allow ladies and inexperienced drivers to do so; but that does not justify anyone in shirking the trouble of showing a horse from the first all that is behind him, and teaching him that what he naturally dreads so much will not hurt him. Every horse should not only be broken without blinkers, but he should often be driven without them when in good hands, and under all necessary precautions. The most timid persons often ignorantly incur the greatest risks; and it is a strange fact that thousands of timid, wealthy persons, who would spend a fortune rather than knowingly incur any risk to their lives and limbs, are daily riding behind magnificent horses, which are left really dangerous for want of an extra pound being spent on their education.

392.—When the colt has learned to go steadily in harness, give him a good deal of practice at stopping and starting. Always choose good ground for a start at first, and encourage the colt to start slowly, with a quiet lean in the collar. Start the old horse at the same time, so that if the colt happens to fail in any way at his start, he need not know it, as the old horse will get quietly away with the carriage. You must never forget that impatience is the parent of jibbing, and encourage the colt to take as much time as possible at his starting. You can very easily make him quicker if necessary, when it is safe to do so, but your first and most important, and most difficult business is to teach him to take a pull slowly and patiently. Plenty of practice at a slow walking pace will soonest bring him to steady pulling.

393.—The uneducated jibs that we see in South American and Australian coaches will all pull at a gallop, but get frightened directly they find a collar pressing on them at a slow pace, and become paralysed with fear in the expectation of the brutal assaults they have learned to associate with that misfortune. They appear as unable to move as the horse is when surrounded with a burning stable. On such an occasion we have seen a coachman, who was said to be a most skilful driver, smashing up his horses with a spare swingletree, amidst the apparent approbation of his passengers, including the enlightened champions of the rights of women, negroes, and working men. If such men only knew what was paralysing the poor brutes, that they see are always willing to gallop to death at the sight of a whip, a coachman, with such propensities, would occasionally be tarred and feathered as some small reward for his brutality.

394.—The colt may next be put in single harness, about which there will be no difficulty if all has gone well so far. A light two-wheeled conveyance, with moderately strong shafts, should first be used, and put in a good clear place, where it will start easily, and have room to deviate considerably from a straight line. Put on good strong harness, which must include a well placed strong rump or kicking strap, passing over the haunches. To meet this, straps with suitable buckles must be fixed on the right part of the shafts. The breeching should be permanently attached to the backband, so as to require no buckling or unbuckling when putting the colt in or taking him out. The leather rings of the backband should be so small, or the stops on shafts so large, as to make it impossible for them to pass through the backband.

395.—Stand the colt in front of the sulky, or gig, and let an assistant quietly hold him there whilst you bring the shafts over his back and put them into the backband. Hitch the traces quickly, and buckle the bellyband gently. Take your seat and let your assistant walk by the colt's head, just to see that he guides well to the reins before he takes his seat by your side. Go off at a walking pace if you can, but avoid any unnecessary pulling at the colt's mouth, and let him have as much of his own way as you can at first. Take him on no heavy bad roads, and do nothing that will be likely to cause him to stop. There should be no danger of his stopping if all the precautions have been previously taken that we have advised, but if from previous neglect or bad management, that should happen, you must on no account urge him forward either by voice or touch. Such a thing should never happen, and never will happen if you have properly taught your colt to pull in the collar before hitching him to any vehicle (380), and have done nothing foolish to spoil him afterwards. But if from any cause it does happen, you must at once recognise the fact that you have now to face the greatest danger that can befall your colt's education. One touch with the whip in that position will now make him an incurable jib for the rest of his life. You must in no way urge the colt into the collar with that vehicle attached to him.

396.–If the stop occurs, as is most likely, at the starting, take the horse out immediately and proceed to teach him to pull (380), and let the lesson be safely inculcated before you again hitch him to any vehicle. If it occurs at a distance from home, you must let no consideration of inconvenience, or mortification, or ridicule induce you to risk spoiling your horse. If he stops going up a hill you must take him out at once, put the vehicle on one side of the road, and drive your horse on to the top of the hill. If you have an assistant who can hang on to the traces and keep him pulling up the hill so much the better (380), but let there be no delay, no noise, or fighting, or anything that will impress the event on the horse's memory. When you reach the top of the hill turn round and come down again, and put the horse into the vehicle with his head down hill and towards home. Then get up and start as at first (395), but drive home at a brisk trot. In nineteen cases out of twenty it would be quite easy to turn round when your horse first stops on a hill, and to start down hill home; and that would be far better than any whipping or fighting, but there would be some danger that the horse would pick up the idea that he could get taken home at any other time by the same process.

397.—If he has stopped on good, hard, level road, where there is little traffic, and at a distance from home, you can try if he seems inclined to back, and if so, you can get out and take him by the head and keep him going backwards for at least ten minutes, your assistant helping to back and guide with the wheels if necessary. Don't be rough with him, but urge him backwards, and keep him at it, until he is evidently tired of it, and desirous to go forward again, when you may get up and drive towards home at a brisk trot.

398.—If he stops on a soft rough road, where the pulling is really heavy, treat him the same as directed for up hill (396), but instead of putting him into the vehicle on your return, take him home without it, and send another horse to take the vehicle back.

399.—In all cases you may regard the stoppage as a proof that you have put the colt to draw a vehicle before you had properly prepared him for it, and you must repair your error as quietly as you can, without spoiling the colt over it. You will also be generally right in concluding that the colt which stops in that way is not likely to be headstrong, or rash, or a runaway, but a gentle, easily restrained animal, that must have a good deal of patient training to reconcile him to pull at any restraining object. In other words, he will generally be found to be an animal that can easily be made a worthless incurable jib, but one that with sufficient care and patience, will make one of those free, gentle, controllable horses, that are so highly prized by those who know what a pleasant horse really is.

400.—A still more safe and expeditious way to start a colt in single harness, is to hitch a steady horse on before him, in charge of a trustworthy rider. In this way the colt can be taken without risk of spoiling him over any bad roads, or past alarming objects. Of course the colt is not broken to single harness until he will go alone in harness. But the old horse can be taken off on the road home and ridden behind, when the horse has proved that he will pull steadily in the shafts.

401.—There is no real necessity to have a broken horse at all in educating a colt for harness, although it is more easy to use one than to do entirely without. But with careful preparation before hitching to any vehicle (380 to 384), even the wildest colt can be made a safe and excellent harness horse, without the assistance of any other horse, perhaps, upon the whole, a rather better horse for single harness than you can get in any other way.

402.—The finishing strokes of the education of a horse for light harness consist of nothing more than good careful driving for a time. Introduce him to alarming objects as you would do any other horse (214 to 217). Handle his mouth gently, and insist in the same way (211) upon obedience to every rein signal. Good habits can only be confirmed by time. Any young horse can be easily spoiled, so that unskilled drivers should only undertake to handle horses that have for months, if not for years, gained experience at their work in good hands.

403.—Nothing will take so long to ensure in the young horse as the habit of pulling steadily and slowly. The more constantly he is kept at slow, hard, but always possible pulling the sooner he will get reliable at it. But he must never be overdone, never be asked to take a heavy pull at starting, especially with a cold shoulder. Never whipped or hurried at his starting, never worked with a jib, and never asked to pull a second time without a change of position at anything that has proved too much, either for his strength or his attainments. Be especially on your guard not to ask him to take a bad start after a day's rest. Supposing it to be necessary that he must start something heavy after a few day's rest, put him first at something light, and get his shoulders warm before you ask him for a heavy steady lift. Carefully study your colt's temper, watch his ears at every start, and you will soon see how much you may ask him to do, and at any rate don't overdo it. Keep a sharp look out to avoid sore shoulders, sharp bits, tight reins, and above all, impatient, thoughtless, stupid drivers.

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CHAPTER XVI.

BREAKING TO SLOW HEAVY DRAFT.

404.—The education of the heavy draft horse is one of the few arts in which we have certainly made no progress during the present century. The magnificent animals that drew the funeral car of the Great Duke, in 1852, were less docile, less staunch, less under command, and less capable of simultaneous and united action, than animals that could have been procured for the same purpose if the Duke of Wellington had been slain at Waterloo. Half a century earlier a team could have been supplied that would not have demanded a leader at the head of each horse, and that would have caused us to hear less than we did about the difficulty of starting that ponderous carriage.

405.—The great and much needed improvement in the condition of the farm labourer, that has taken place during the last half century, and the equally improved state of our roads, are two blessings for which we may well be thankful, but are nevertheless changes that have both tended to cause less care and attention to be given to the education of the draft horse than was given a hundred years ago. The soft roads that called for the use of harness bells to give timely notice of the approach of another team, so that the best place could be chosen for pulling out of the deep ruts, demanded horses that would hang on to a long, slow pull, and that would pull altogether at the word of command. But one of the strongest motives for first class education was supplied to the driver by the fact that the law would not allow him to ride without reins, and the master would not let him have reins to drive with, his muscles being supposed to be a cheaper article than those of his horses. Thus when he stole a ride, even on the shafts, he was at the mercy of every passer by, and could only expect that mercy by having a team so completely under command of his voice that no one could complain of his driving. Though it is painful to think of those weary footed, overworked, and care worn men, who could only earn the price of a bushel of wheat by working seven days from five in the morning until seven at night, it was a pretty sight to see those patient drivers and well cared for horses steering to an inch to miss stumps, clumps, stones and holes without the use of a rein.

406.—We do not mean to say that the draft horse has not been improved during the present century. He is as much improved as the Shorthorn, the Leicester, or the Southdown, but it is the breeding, not his education, that has improved, and that improvement has been physical, and not mental. He is less lymphatic, and more fibrous ; more active and more enduring ; has better wind and better limbs ; but he is treated less as a companion and more as a machine, and is dragged about with the reins instead of being directed by the voice. The much heavier loads that he draws over much better roads, calls for perhaps more continuous, but certainly far less discriminating exertion. Though it is common to hear much of the intelligence of the Arab, and to speak of an uneducated man as being "as ignorant as a waggon horse," the waggon horse of Great Britain has commonly acquired far more education, and has brought more intelligence to bear on his work than our fast horses usually do, though that is only the natural consequence of his being often the almost constant companion of one driver, and of being usually allowed to live long enough to become intelligently familiar with his work.

407.—But whatever may be the relative amount of intelligence in the cart horse, it is certain that he has been long bred with an eye to the work that is required of him, and that he takes to that work as kindly and as naturally as a well bred sheep dog takes to his, with wonderfully little attention and less trouble in the way of education. To begin with, he is usually introduced to the stable, the manger, the harness, the plough and harrows, the cart, and the highway with its engines, roads, bridges, and other sights and sounds, whilst running by its mother's side.

His winter feeding gives him still more confidence in man. His natural good temper, his thick skin and thicker coat of hair, prevent him from being very sensitive, so that we have often seen him successfully, though very imprudently, put to work without any special preparation whatever.

408.—A professional breaker is seldom employed. He has not the appliances at command that are found on every farm, and it is not usual to meet with a horse breaker who understands the work of a draft horse, and if he did it is far better that either a horse or a dog should be broken in by the man who is afterwards to work him. A change of drivers during the first year is very undesirable. The pride which every man takes in his own good work will always ensure a colt being taken more care of by the man who is responsible for his education than he will be by any one else, and nothing improves a carter or a ploughman so much at his work as compelling him to learn how a young horse should be treated from the first.

409.—Having been taught to tie up (184), to lead well (188), to bear without fear, any kind of articles rubbing about his hind legs (381 to 383), and above all to lean gently but resolutely into the collar, with the full confidence that it will move when he pulls at it (380), there is not one colt in twenty that will give any trouble in introducing him to actual work. Too often even these wise precautions are not taken, and the raw colt that has just been harnessed for the first time, is put in traces with a quiet horse before, and another behind him, and left to take his chance. The good tempered animal occasionally passes through even that ordeal quite unharmed, and makes a good horse in spite of it, but more frequently he gets to treat the collar as something immovable, and is never afterwards so reliable at a heavy start as he would have been with more care to give him the necessary confidence in his power (375, 380). Sometimes the colt is even put to begin with where he must pull hard to be able to get on, and even whipped or tortured, or frightened in some way to urge him against a resisting collar. Such treatment cannot fail to spoil any colt, and is only practised by men too ignorant to be trusted even with a donkey.

410.—Having then been duly prepared, bring the colt to the field, with nothing on him but a good strong leather halter, and tie him to the side of a quiet, good tempered horse, and let him walk by the side of a team at work until he learns to walk before any farm implement without any alarm or any desire to keep further forward than his companions. When he has learned to go well on one side put him on the other side. It will do him good and will be very little trouble to let him walk two or three days like this, although a much shorter time can be made to do.

411.—The next step will depend on what you have found the colt to be as a puller, and how easily he is restrained. If he is a gentle, easily restrained colt, that was at first reluctant to pull resolutely in the collar, he must not be hitched to a large team, or to anything very heavy. Put him on a light chain harrow alone, and drive him carefully for two or three hours on several successive days, increasing the weight a little each day, until he will pull without hesitation all that he is fit to pull alone. When his starting and pulling in this way have been made quite satisfactory, put him to the same kind of work, and to not more than the same weight between the two, alongside another horse, and take care that he has not much to pull until he has become entirely reconciled to the restraint of being tied to a mate. When this has been done the transfer to a two-horse plough will be easy, and his hours of labour may be increased, carefully watching his shoulders so that they shall not be made even tender (388). The longer such a colt works on the balanced swingletrees of a light two-horse plough, before he is transferred to a larger team the better, as there will for a long time be a danger of his getting alarmed at a pull that will not yield to his unassisted effort.

412.—This is the safest way to treat any young, quiet horse. Ploughing is often heavy pulling, but is constant, and being generally on balanced swingletrees, and never demanding a pull that cannot be eased off without much trouble, a colt is seldom spoiled at it, so that in ordinary hands, it is upon the whole the best school for a young draft horse, and turns out the greater part of our very best pullers. When carefully handled at light ploughing, and well supplied with roots or green food, and very gradually inured to the collar, even a two-year-old may be daily worked for a few hours with great advantage, as it will make a far more reliable collar horse of him at four years old, than he could be made if hastily broken at a later age. Double and treble furrow ploughs, with large teams, offer great facilities for breaking in young horses of a less gentle nature, as the ploughman is more at liberty to attend to his horses, and the wildest or most vicious colt can be put where he can do no harm ; but in any large teams great care and watchfulness are necessary to prevent spoiling the colt as a puller, by driving him at a pull too heavy for him to take alone. A long waiting pull at a heavy start is a most important thing to teach the horse ultimately, but it is a task that should not be demanded of a young horse until he has had a good deal of practice at a collar that will move for a shorter exertion.

413.—If the colt in his early lessons has shown symptoms of vice, has attempted to bolt or plunge, and has kicked long and viciously at his lessons with the pole (383), and especially if he is evidently a headstrong, resolute puller, it will be safer not to work him in a chain harrow alone, but after plenty of walking by the side of a working team (410), put him on to a four-horse roller, on the near side before. Take great care to restrain him at a start, and to make the old horses start before him. After a day or two in the traces, he may be put into the shafts. Shorten the tugs and breeching, so as to leave him little play backwards or forwards, and put a strap or rope over his rump to prevent the possibility of a kick. You must still take great care to make the old horses start first, without any noise or fuss, and don't let the colt get cowed by pulling at what he cannot move alone. Be careful in putting him in and out at first, that nothing is done to frighten him. Let the tugs be the first things to hitch, when putting him in, and the last things to unhitch when taking him out Let the shafts down gently without hurting his legs or feet with them. Any hitch, or alarm, or injury at this stage will be long remembered, and cause a great deal of after trouble.

414.—If it is intended that the colt should be worked in blinkers they may be put on over the bridle (390) whilst he is at work, and after he has worked some weeks without them. No farm horse is safe that has not been accustomed to see all that is behind him at every description of work. There are not quite such good reasons for using blinkers at all with the farm horse as there are with a lady's horse in the streets of London; but without them he often gets too knowing, and can judge too well when there is no whip about, or when he is out of its reach.

415.—The best way for a young horse to get familiarised with high, shaking, noisy loads, or general harvest work, is by working alongside a steady horse in a double-shafted waggon. Where only carts are used, he may be worked a few days as an outrigger. In either case he should work without blinkers whilst in charge of the old horse.

416.—We have already said (378) that it is not desirable to give a draught horse a fine, sensitive mouth, and, for the same reason, plough horses' bridles should contain nothing but the mildest description of bit. A ploughman is almost necessarily, but still more habitually, heavy handed with the reins, and thoughtlessly ignorant of the sensitive character of the horse's mouth. His placid, good tempered animal will bear more rough usage than light horses would do, but they, too, often get more than they can bear, and we are often shocked to see the extremely thoughtless, stupid way in which the mouth of the plough or team horse is literally torn to pieces.

417.—It is no uncommon thing to see two or even three horses tied together, not by the halters or heads, but by the actual bits, so that every fly that alights on either of them causes a violent jerk on all their mouths, and no horse can yield to the ploughman's rein, however violently used, until his companions will permit him to do so. To tie their heads together all day by the upper rings of their bridles, or by a high placed, broad strapped halter is bad enough, though often convenient and necessary; but to tie them together by the bits is a wanton piece of cruelty that keeps the horse in the most painful restraint all day, and must, at first, make him a sore mouthed, mop-headed sufferer, and probably a jib. Fortunately, nature will often eventually case-harden his mouth under such treatment, so that he learns at last to guide as little to the reins as to the traces.

418.—Tying together, in any way, is fatal to anything like a good mouth, each horse is subject to the rough jerks of his companions, and cannot answer to a pull on his own bit, until he can overcome the resistance of his companions ; but when fastened together, either by the collars or the halters, each horse will soon learn that he must give his first and best attention to the action of the bit on his sensitive mouth, and overcome any resistance from halter or collar as best he can.

When, on the other hand, they are tied together by the bits, each horse gets a direct horizontal pull from his companion to which he must guide, and only a straight back pull from the driver for which he can only stop. His stopping may, after a while, cause his companions to walk round him, and so cause the team to turn in the direction required, but it is a slow, cruel, and clumsy way of steering the poor animals, and one especially adapted to spoil the horse as a puller, and to make it impossible for him to guide to the voice. A practice so cruel and mischievous should be prohibited by every owner, and even by every legislature.

419.—So great is the danger of spoiling the draught horse by an injudicious use or accidental abuse of the bit, that any experienced horseman will avoid, even a gentle pull on either rein, or taking hold of the horse's mouth, in any way, when requiring him to hang long and steadily on to a pull. Many of the best horse drivers will even take the bit out of their horses' mouths altogether, when drawing logs out of a bush, or on to a timber carriage. Sharp bits and tight reining up have spoiled thousands of horses for pulling, and any tying of the head, far more of the bit, must injuriously interfere with the confidence and vigour with which the draft horse is required to put out his utmost energy at a heavy pull. This is a fact which amongst many others gave a great advantage to the now too much neglected practice of guiding all draft horses by the voice.

420.—Reins are now almost universally supplied to road teams, and the drivers permitted and expected to ride, so that they have no longer the same strong motive to make their horses guide readily to the voice, and it is now a rare thing to see a team guiding better to the voice than any man could guide them by the reins. For all purposes, but especially for agricultural work, the draft horse is far more valuable that has been taught to obey a few simple verbal directions. Even on the road no team can be so pleasantly and completely guided by reins as by the voice, but with the manure, or harvest cart, or waggon, the horse hoe, and the veering plough, where the driver is not riding, and wants both his hands for other purposes, much time, or an extra hand is often saved, and a better result produced, when the horse's attentive ear is made the only medium of directing his course.

421.—It would, perhaps, not be correct to say that it is very easy to teach this. The fact that whilst every one admits it to be a most desirable accomplishment, not one horse in a hundred is ever taught to do it well, must go far to show that it is either not easy, that few persons know how to go to work about it, or what is more like the truth, few persons are made of the right stuff to succeed in the attempt. We may very soon see how to do it, or how not to do it, by carefully watching the men who always succeed, and those who universally fail at it.

422.—Whenever you see a driver whose horses lean confidently into the collar, however slowly they may be able to move the weight behind them, and turn to the right or to the left in obedience to his voice, without tossing up their heads or altering their pace, you may depend upon it that there is something about that man that has eminently qualified him for dealing with the animals in his care. There is no passion in his eye ; there is no agitation in his voice ; his whip is not held savagely in the palm of his hand, but loosely between his fingers and his thumb, and now and then dropped slowly, with half its own weight on the shoulders of a horse that he surveys with pride, whilst he calmly repeats the word "comather," "comather," "comather." His horses twist one ear round to listen to his unruffled voice, and turn to the left without raising their heads or altering their pace.

423.—Look on the other hand at the more common sight, the man who is trying to teach a team of horses to guide to his voice and can never succeed. He cannot utter the same word twice in the same key, nor without sundry additions that cannot fail to confuse the horse. He first says "comather," then "come hither you brutes," then "come here you great thick heads," then "darn your stupid ears, if I don't make you come here when I tell ya." Then the whip goes to work, and a lot of jerking on the horses mouths. The horses toss up their agitated heads as soon as they hear the threatening sounds, put back both ears, and rush off in the contrary direction to that in which they were wanted to turn, only anxious to get as far as possible from the threatening voice.

424.—There is another foolish, thoughtless practice, often systematically adopted, which is almost equally certain to spoil the horse for guiding to the voice. If you stand off at a little distance from many ploughmen and horse drivers you would think that they were constantly ordering their horses to stop and to back ; but the horses do neither, and would be thrashed if they did. "Ja whay," "ja back," are constantly uttered, with the whays and backs loud enough to drown every other sound ; but although the horse has been taught to stop for "whay," and to walk backwards for "back," he is now forbidden by whip and reins to do either, and is only expected to turn to the right. When wanted to turn to the left the same whays and backs are loudly sounded with the almost imperceptible difference that instead of the corrupted gee, we have the corrupted haw, so that instead of "ja back," we hear "ha back," and the poor horse is expected to know that the one means turning to the right and the other to the left.

425.—So good and discriminating is the horse's ear, when not frightened, that with a very quiet, good tempered man, he will sometimes eventually learn to distinguish the difference between whay, and ha way, and jay whay, though how he does so will puzzle anyone who has ever listened to that monotanous jargon. When the same words are uttered passionately and accompanied with jerks and blows, the result is what we so often see, the horse holds up his head and runs, and soon will neither guide nor slacken pace for anything you can say to him. The supposed object of adding whay or back to every guiding order is, to get the horse to turn steadily without rushing forward, but the actual effect is just the reverse of this, as the horse is almost necessarily stupified and rushes about in fear.

426.—For obvious reasons all sentences or any combination of words should be avoided. Anything we are likely to require from the horse should be represented to him by some short, simple word, quite distinct from any other word we use to him. With the ordinary draft horse, we only want about eight words to be well understood and obeyed, to make him a very handy horse, and there can be no difficulty in getting them all simple, distinct sounds, that will not over tax his very limited power of understanding language.

427.—No word must have two meanings with the horse, nor be pronounced in two different ways, nor even uttered in a different key. Even his name must not be used both as a word of endearment or petting, and as a word of stirring up or reproof. The latter is its proper use with the cart horse, and if you also want a pet word to address him in his resting hours you should choose some softer word for that purpose.

428.—Any guiding words should be soft in themselves and be softly uttered, so as to have no tendency to increase the horse's pace when addressed to him. In the South, West, and Midland counties of England, the words "Comather" and "Wooaged" are used for their their leaders, and "Yea" and "Hoot" for their shaft horses, and no horses are better driven than those. But the Scotch guiding words "Haw" and "Gee," like the Scotch men and horses, have spread farther over the world, and are very suitable, being short, soft, simple, and distinct, so that there is no objection to their adoption. With their single horse carts, and single furrow ploughs, the Scotch had no need of a duplicate set of guiding words; but in turning long teams there is an immense advantage in teaching your leaders to guide for one set of words, and your hind horses for another. In any case, "haw" and "gee" may be used for left and right for your leaders, and if different words are taught to the hind horses, the old Wiltshire word "hoot" will do very well for turning the hind horse to the right, but their other word "yea," can be too easily mistaken for "whay," and we would therefore use "hie" in its place. The two words yea and whay are not at all similar in Wiltshire dialect, but we are not now writing for any one county or dialect.

429.—Of course each horse in a team must have a name of his own, and a name that should not resemble the name of any other horse in the same team. We have known four horses working together to be named Hob, Nob, Rob, and Bob. It will be seen at once that they might as well have had no names at all. Bob, Jack, Dick, and Rough; or Boxer, Trooper, Sharper, and Smiler are examples of names that cannot be mistaken for each other. Each horse should understand that when his name is sharply called, he is going too slow, or doing something wrong, and this impression is easily kept up by calling his name whenever it is necessary to touch him with the whip. In this way an indolent horse may be roused, without exciting any other horses that may be already doing too much.

430.—Each horse must be taught a general word that the whole team will understand to be a command to start, such as the word "gently." He must also understand an urging word, such as "now then." He can with great care be taught to understand and obey a slowing word, as "steady." He is easily taught to stop, and to stop instantly, for the word "whay," and with no great difficulty to walk or push backwards for the word "back."

431.—This completes the eight simple words to which every draft horse should be taught to attach a distinct meaning, and promptly to obey, thus—

Jack—You are going too slow, or are doing something wrong.
Gently—Lean forward slowly and gently into the collar.
Now then—Go faster or pull more.
Steady—Go slower or pull less.
Whay—Stop instantly.
Back—Walk backwards or push backwards.
Haw—Turn to the left.
Gee—Turn to the right.

432.—A horse that is always to be used as a shaft horse, or to go behind in a long team may advantageously be taught the guiding words "Hie" and "Hoot," instead of "Haw" and "Gee," so that he can be directed in one direction whilst his leaders are turning in the other.

433.—It will be seen that we have given the word "whoa" no place in our small vocabulary. It is a word so universally abused, and one so liable to be applied, with an endless variety of meanings, by each thoughtless busy body that approaches a horse, that it is best to let it alone altogether, and not confuse your horse with the use of a word which you will not be able to limit to any one meaning.

434.—Having settled upon the words to be used, the next business is to teach the horse to understand them. You cannot too distinctly bear in mind that your difficulty will be in getting your words understood, not in getting them obeyed. Once get them understood and they will be obeyed fast enough. Your pupil is only two willing, too nervous, too timid. Any careless man can teach an ox to guide to the whip and voice, because the ox is less timid, less sensitive, less willing to exert himself, so that careless blows and loud words have not the same fatal effect upon him that they have upon the horse. For the same reason the old fashioned lymphatic cart horse was more easily taught this business than the more nervous horse of the present period, and the cart horse more easily than the blood horse.

435.—You must approach the young horse as you would approach a foreigner who does not understand a word of your language, not as you would approach a deaf man, or an inattentive boy. He can hear better than you can, and is never inattentive to any new sound, so that shouting and whipping will only hopelessly confuse and alarm him, and render it impossible for him to give you the calm attention and placid obedience you want to ensure.

436.—All the words demanding action and exertion will be learned fast enough, indeed you cannot prevent his learning them. He will know his own name almost as soon as you have fixed upon it ; he will be trying to go on before you can say "gently," and will very soon associate the word "now-then," with a threatening swing of the whip, and quicken his pace accordingly. It is only the guiding and the slowing words that present any difficulty. These will never be taught very quickly, and will never be taught well, except by the most patient, forbearing, consistent attention.

437.—The guiding words should be taught at the daily work. When you first put the colt into the light chain harrows (411) will be a good time to begin this. Every time you pull either rein, let the corresponding word "haw" or "gee," be uttered, and continue slowly repeating the word as long as you pull the rein or want the colt to turn in that direction. As you drive him towards a fence or other obstacle keep him straight up to it, and as he hesitates which way to turn from it give him the order, quietly and distinctly, "haw" or "gee," and pull the corresponding rein. As he gets to understand the word turn him to the word alone, keeping the rein ready to enforce obedience. When he is yoked to another horse (411), continue the same treatment, and make both horses obey the guiding words at every turn.

438.—The result could be hastened by a sharp bit or a loop bridle severely used, but the calm unagitated turning that is so desirable in a team would be lost, so that it is much better to quietly continue the lesson at every day's work than to excite the colt by any rough handling of that sort.

439.—The lesson can be equally well taught, although still more slowly, by working the colt alongside of a well taught horse that is constantly guided by the voice, the colt being so tied that the old horse can command his movements.

440.—The slowing word "steady," is the one most rarely taught effectually. We constantly hear it used, but we seldom see a horse that pays much attention to it. It is most effectually taught by driving the horse with reins in any kind of single harness where he has not much to pull. You can soon teach him to slow down from a trot to a walk at the sound of the word "steady," softly and calmly repeated, enforcing at first obedience with the reins. After he has been made quite obedient at that, teach him to slacken a walking pace to a very slow walk as he hears the word repeated, gently enforcing obedience with the rein. This will be far more difficult, and will only be taught to a lively horse, with very persevering consistency, unfrustrated by any thoughtless act calculated to excite the horse. For instance, after you cease to repeat the word, and want the horse to quicken his pace, take care that you do not spoil the slowing business altogether by suddenly touching the horse up with a whip, but give him plenty of harmless verbal notice of the change you desire. It is chiefly a question of confidence, and is of course far more easily taught to a trusting, easy going animal than to an impatient eager one.

441.—Stopping altogether to the word "whay," is very easily and quickly taught to any young horse, and often more quickly taught to a lively than to a sluggish animal. Only a harshly treated horse that has not been allowed to stop whilst the word or some combination of it has been shouted in his ears (424), ever gives any trouble about stopping to order.

442.—There is perhaps nothing in which horses differ so very much as their willingness or unwillingness to go backwards. Some horses take to it naturally, and can hardly be prevented from doing so in season and out of season. Others are most unwilling to take a single step backwards, and can neither be forced nor frightened into any action in that direction. The difficulty is generally increased by blinkers, and sometimes rendered very great by forcing the colt backwards into some danger, injury, or alarm to begin with.

It is no good to threaten or to strike him from the front, or to drag savagely at his bit. Take off his blinkers, and standing behind him, keep a firm, strong, steady pull on both reins until he gives back a step and then instantly slacken the rein, and let him feel that he has relieved his mouth by giving a step backwards. Pet him a little, and then repeat the process. In this way you will slowly get him reconciled to the unnatural movement, and get him to find out that no harm results from it. As you use the reins repeat the word "back," and he will not be long in learning what you mean by it.

443.—Never attempt to teach any horse to back a load until you have taught him to go backwards without a load, and then teach him to push a load backwards in the same gradual way, and with the same precautions, to give him confidence in his own power, as you use to get him to pull forwards (380). Make him thoroughly understand the word back, by using the word and the reins together, as long as may be necessary. It is a great advantage to have a shaft horse that will back without any one near his head, and when thus taught the horse always backs far better that when pulled about with the bit.

CHAPTER XVII.

VICES AND BAD HABITS.

444.—These are for the most part easily prevented in the horse by careful education and by the precautions we have recommended. They are not so easily cured, nor is the reclaimed horse any more than the reclaimed man so entirely trustworthy as one that has never gone astray. Persons are always more willing to pay for reclaiming than for preserving either health or virtue, although they get a much worse article at a higher price. We may carry the comparison between man and horse under this head a little farther, and say that the "perfect cures," paraded with so much ostentation before the public, are generally perfect failures, and often fraudulent deceptions. The man or woman who wants a really good reliable horse to serve them well, under good treatment, had always better get a horse that has been so educated from the first that it has never had any serious vices to eradicate, and leave either vicious or reclaimed horses to those whose hard work, or poor fare, or steady company will put them beyond the reach of temptation.

KICKING

445.—Is an accomplishment at which the horse has few if any equals. The hard and often iron clad hoofs, the supple joints, and the velocity given by the long levers, moved by the powerful mass of muscles above them, give a force and velocity to one of his blows that may well be dreaded by all who have to deal with him. He is perfectly conscious that it is his best means either of offence or defence, so that he naturally resorts to it for either purpose. If his confidence in himself were equal to his power, there are few if any animals that could face his well applied heels. The propensity has, to a great extent been both bred and educated out of many strains of the domesticated horse, so far as to make them resort to it unwillingly, and to threaten long before they strike.

446.—There are many different ways in which a resort to this natural weapon is dangerously developed by faulty education, each requiring to be met in a different way, because proceeding from very different causes. The most common exhibition of the dangerous propensity is kicking in harness. We can only wonder that an animal whose natural defence is kicking and running away, can so commonly and so soon be made to allow all kind of sights, sounds, and sensations to follow him up without trying to do either. When he does kick or run away in harness, it is almost always the consequence of fear, and generally the dread of a repetition of something that has really hurt him. The remedy is to show him that a carriage may follow him closely without hurting him, and that therefore neither running away nor kicking are necessary to protect himself.

447.—The first lesson may be directed to the sense of touch. Use the smooth pole (381 to 383) on every part of the body, first without and then with the blinkers on. For this purpose the horse may be either held by a reliable assistant, tied up, tied to his own tail (346), or secured by strapping up one fore leg (353). It may take much longer to reconcile a horse that has been hurt in harness than an untouched colt, either to sights, sounds, or touch. All that we have said about doing it thoroughly with the young horse, applies equally here (383).

448.—You must next reconcile him to the sight of anything that has alarmed him. Put him into some plain light fourwheel, without blinkers, with a strong bridle, and with one fore leg securely strapped up (353). However wild or vicious he may be, he cannot kick on three legs, and he cannot run far. The only danger is that he may throw himself down, so that his knees should be protected with caps, the ground under him be soft, and the shafts should not be very frail or valuable. An experienced man will soon see when he first straps up a leg, what danger there is that the horse will not stand up, and if it is great will not trust him in shafts, but put a quiet horse in the shafts and fasten the kicker on as out rigger.

449.—If the horse is in shafts alone, and has never been before a carriage without blinkers on before, it will be desirable that a man should be on each side of his head with a moderately long strap attached to his bit, so that they can keep him in any desired direction, and cannot be thrown from his head however violently he plunges. He will exert himself pretty actively when he first sees the wheels rolling after him, but will soon be obliged to stop, and thus prove that the wheels stop when he stops. You must not keep him on the same three legs long, but put one leg down and strap up the other. If you are not very skilful at this, or have not a practised eye to see when the horse can be trusted a few moments, it will be wise to unhitch the horse whilst you do it.

450.—When he has ceased to be alarmed about the wheels and carriage running after him, unhitch the breeching and traces, and taking the shafts out of the backband, draw the carriage on to his hind legs. Push it backwards and forwards on to him without hurting him, and get him to care as little about it as about the poling you have previously given him, before you desist.

451.—You have now gentled him to the senses of touch and sight, you may next deal with his ears. Tie a common sack to his tail and let it drag on the ground after him. Then tie a large tin can of some kind to the end of the sack, and let it jump about and rattle after him. If he has any particular alarm for any kind of sound, give him plenty of it, and let him see that noise is very harmless.

452 —In this way a horse will find out that a carriage may follow him up, or run on him, or make any amount of noise without hurting him, and will soon cease to make any desperate efforts to run away from it.

453.—You may now get a piece of small strong rope, about 18 feet long. Double it, and taking the middle of the rope, put it over the horse's head, behind his ears. Bring it down on each side of his face, and cross it in his mouth, taking the ropes up again over his forehead and between his ears. The two ropes must be loosely tied together with loose loops of small rope, one on the forehead and one behind the ears, the latter being securely fixed to the head of the bridle. If a ring were fixed in the top of the bridle for this purpose it is rather better than a loop. Bring the ropes back through some secure rings, or ropes, or straps on the saddle, to a strong ring on the rump, about fifteen inches from the root of the tail. From this rump ring bring down one rope on each side and tie securely to the shafts, leaving no more slack than is necessary to let the horse move freely. The traces and breeching must be so hitched that the horse cannot get far forwards or backwards, so as to much alter the position or tightness of the rope. With a powerful bridle and strong reins, you may now take your seat behind the horse in a carriage with a powerful break at your command. Your assistant may then let down the foot and you may drive away. If the horse attempts to kick he cannot succeed, and will punish himself so severely in the mouth that he will not try many times.

454.—This is a rough lesson and one that will never be necessary except with a horse that has been spoiled, or allowed to hurt himself in harness. Whilst the check line is on try everything that is likely to set him kicking and let him clearly see the instant and invariable connection between kicking and punishing his own mouth. When you cannot provoke the horse to kick any more in that gear, you may alter it by fastening the check line to each side of his bit, instead of crossing it in his mouth. You may drive him in that way for several days, and when that is discontinued, a secure, well-placed, common kicking strap should be used for a long time, or until you are quite sure that there is no disposition left to kick. If at any time he should attempt to kick with the common kicking strap on, put on the punishing gear again, and let him give himself another lesson. This will make the most dangerous horse quiet enough for ordinary purposes, and will keep him safe with constant hard work, but such horses are often liable to kick again after a long rest, or in very frisky condition, or under any special provocation, and should not for a long time, if ever, be trusted like a horse can be that has been handled without any mistake from the first.

455.—Far more reliance is to be placed on the reconciliation than on the punishment, as its effect is far more permanent and reliable. When a young horse, naturally good tempered, has been spoiled by a single accident, and the habit of kicking has not been confirmed by subsequent malpractice, it is often possible to get him completely over it with sufficient care. Of this we will give an illustration.

456.—In 1861 we bought for less than one third of his value a very fine four-year-old cart horse. He had been put into a plough at three years old, had run away, and had so lacerated his hind legs that he had to be turned out for a year. When anything touched his hind quarters he would kick violently and incessantly, so that we could not stir him up with a pole, or even with straps, without danger of hurting him. We put him in a narrow stall which was further narrowed and protected with some well secured sacks of straw. We put blinkers on him and tied his head forward, and at each side, so that he could not much alter his position. We then got a large bundle of long wheat straw, very firmly bound with three rope bands, and suspended it behind him so that it would fall against his hind quarters. He kicked at it until covered with foam and shaking in every limb. If ever he got away from it we pushed it against him so as to keep him going. We then took off his blinkers and then let him see what it was that he had spent so much fury upon. We next got a small bundle of straw and suspended it from his own tail, upon which he also wasted a great deal of energy.

This was repeated three days, but we could never get him to do much kicking after the first day, and on the third day could not get a kick out of him by anything we could do with straw, pole, straps, or traces. The horse was never known to kick afterwards, but proved a remarkably tractable and bidable horse, either with or without blinkers.

457.—Kicking in the stable or at persons who approach them is a very different habit to that of kicking in harness.

Whilst the latter is a vice to which any horse may be brought by accident or bad treatment, and to which the timid are most prone, the former is not unfrequently displayed by horses that have great confidence in themselves, and have been surrounded by men or boys who have either teazed or been afraid of them. Pointing or poking at a horse, using uncertain hesitating means to make him stand-over in the stable, running from him as soon as he turns his heels towards you, or showing any signs of fear to approach him, or hurting him in the act of cleaning will often induce a horse to kick. Some severity is necessary here, but there must be no pitched battles, or doubtful conflicts, or striking matches, which would be sure to make matters far worse.

458.—After your horse has done feeding put on a loop bridle (356). Strap up one of his legs (353), and buckle a short strap round the hind leg, close above the hock, and another close below it. Put another strap, loop, or ring through both of them, in front of the leg, and draw them together. Bring back the line of the loop bridle through a ring in a surcingle, at the horse's side, and fasten it to this front strap, so that when the horse kicks he will violently jerk his own jaw. Then put down the fore leg and approach your horse in a way most likely to make him kick with that leg. This will soon cure him of the habit, and may be kept on most of the time day after day if necessary, merely taking off the loop bridle to feed him, although he can feed fairly well with it on if required. A rope may be brought back to each hind leg if necessary.

459.—Whilst the loop bridle is on you can attach a small rope to the left side of the loop, round the horse's jaw, and bring it to the left side of the stall near the manger. It may there pass through a pulley, or a piece of wood with a large smooth hole in it for the rope to pass freely, and come back to another pulley on the inside of the left back stall post. When you are going into the stall go in boldly, and taking hold of this rope pull it smartly, and say distinctly at the same moment "stand-over." Repeat this as often as necessary, and the horse will soon learn to turn his hind quarters away from you whenever you approach the stall, or whenever he hears the order to "stand-over."

Every horse should be taught to do this, as it makes him handy, and prevents his being taught to kick by timid hesitating approaches.

460.—A horse that has acquired the habit of kicking at the stall can be checked in the same way. For this purpose a very loose, easy loop bridle may be kept on day and night until the habit is checked.

461.—Kicking in the field or at any one who approaches him is a very dangerous vice. A horse liable to do this should be severely checked without delay. Turn him out with an easy loop bridle on, to which a very long and light rope may be attached. The rope may be kept so that the horse cannot tread on it by supporting it with the mane and the tail. Tie a strong lock of each with a piece of waxed string, and dividing it in the middle pass the line through it. In this way the line may trail so far behind the horse that you can get hold of it, and effectually order him to stop, and to turn the right end towards you. Do this very often, and somewhat severely, whilst the bridle is on him, always using the same words, and he will soon learn to understand and obey the words, even when you have no means to enforce your commands.

462.—The same means may be used with a horse that runs away when you approach him, and for that purpose the line may be left any length that you may know to be necessary. If the rope is very small, and the loop loose round the jaw, it will not greatly interfere with his feeding. Of course the dragging end of the rope must be well bound to prevent it unravelling. The horse will soon learn to drag it carefully, and it will make him for a long time afterwards more gentle and submissive in his grass rambles.

REARING.

463.—High conditioned and lively horses that are least liable to kick, are often most liable to rear, or stand on their hind legs. They are most likely to do this when roughly handled or checked with a curbed bit. With most horses gentle, sensible treatment, and a mild bit will prevent this. With all mild cases, and with all young horses that remedy should be patiently tried.

With some few horses the habit becomes very inveterate and very dangerous, and then the old rough rider's remedy must be resorted to, but without the risk that he very unnecessarily incurs.

464.—Put on a pair of blinkers with a severe curb bit. Take your horse to a very deeply and uniformly covered dung yard, or other very soft ground. Put on a pair of long reins, and drive your horse about with them. In a good clear spot check him, so as to make him rear, and when he rears pull him over on his back. Repeat this until you can get him to rear no more. He will remember the lesson for ever afterwards, and will probably never rear dangerously again. This is a very rough lesson and unless the ground is very carefully chosen the horse may be seriously injured by the high fall, but it is less dangerous, even to the horse himself, to adopt this severe remedy than to leave him to choose his own ground for a similar fall in unskilled hands. A severe curb bit is always liable to make a horse rear, and with such a bit a rearing horse should never be trusted in unskilful hands. A loop bridle, a loop round the jaw, or a ring bit, give great holding power without the same tendency to cause rearing.

STICKING UP

465.—Or insisting upon going where they please, or upon not going in any particular direction, is a vice very common with badly broken horses, *i.e.*, with horses that have been allowed to find out their own power. It must never be mistaken for jibbing, which results from quite a different cause, and requires totally different treatment. Jibbing comes from a want of confidence in his own power; "sticking up" from too much faith in his own power, and too little in yours. Sticking up is more often shown in saddle than in harness, though it is common enough in both.

466.—It may be shown in a hundred different ways and may require a hundred different stratagems to overcome it, but there are some rules that will apply to all cases.

Never accept the horse's own challenge; never make a martyr of him; never attack him in the way he expects to be attacked, and has prepared to resist you. Never let the encounter be a physical but always a mental one. Give him his own way if you can, but take care to show him that he gets nothing by it.

467.—With these horses it is generally a question of refusing to go away from home, away from company, or turning some road that implies a long journey. They often fix on some particular spot beyond which they will not go in that direction, or they insist upon taking some turn that leads in the direction they want to go; and some of them have learned some successful way of putting their rider off at a particular spot and going home without him. We have known a few horses who have never failed at this, no matter who the rider was, but would deliberately tumble over on their back when all other means failed.

468.—We can only give a few illustrations of the way to outwit such horses. You will find some of them very learned in such matters, and perhaps up to more devices than you are. But as soon as you find that they are up to one, change it immediately and try another, until you hit upon one that they are not up to.

469.—We will suppose that the horse stops and prepares to turn round. Don't resist the turn but give him a quiet horizontal pull with the rein in the direction he wanted to turn, so as to carry him further round than he intended to go, and if possible keep him going quietly round half a dozen times. In mild cases this will often upset all his calculations, and he will go quietly on without more ado. If six turns will not do give him twenty. In fact if he will keep on turning to your rein you are safe to conquer, as enough turning will certainly confuse him and leave him at your command.

470.—If he will not turn and will back to the rein, keep him going backwards in the direction you want to go. He will soon get tired of that and prefer to go with the right end forward, but before you let him turn, give him decidedly more backing than he likes.

471.—If he will neither turn nor back, or if you are not a sufficiently skilled horseman to deal with him on his back, get off and tie a knot in his tail, or tie a piece of string securely round it, and taking the reins over his head, draw them through the hair of the tail so as to give his head a sharp bend towards the tail (346 to 351). This is most easily and safely done if you have provided a few yards of string in your pocket. Tie the string to the end of the reins, and passing it through the hair of the tail, draw the reins to the required tightness and tie the string to the left side of the bit, in a bow that can easily be untied with a single pull.

472.—Failing the string, unbuckle the reins from the left ring of the bit, and pass the reins through the left ring, so that the rein will remain buckled to the right ring and pass under the jaw through the left ring. Pass the rein back through the hair of the tail, and bringing it forward to the head, buckle or tie it at the required length to the left ring of the bit.

If the tail is a short one, or if there is any difficulty about hair, you can use one of your stirrup leathers to give all the length you require. Start your horse turning round, and as soon as he appears giddy or threatens to lie down, untie the rein, get on his back and go on. If he has had enough circling all thought of resistance will have left him ; if he has not had enough give him another dose.

473.—A harness horse may be taken out of a carriage, and served in the same way if necessary, but the backing remedy will generally answer the purpose with them ; or taking them out and giving them a short lounge round on the rein. Never fight with them whilst hitched to any vehicle, or you may teach them the far more incurable vices of kicking or jibbing.

474.—With some horses it has proved quite easy to break up the habit by simply letting them turn their own way, and then taking them where you want to go by some longer route.

475.—We once knew a horseman who cured his horse by sitting quietly on his back for seven hours, on the spot where he chose daily to stick up, and then doing the journey the horse had objected to go.

LYING DOWN,

476.—So commonly resorted to by a refractory, or weak, or weary, or overheated, or persecuted ox, is very rarely attempted by a healthy horse, so that when he does lie down, something wrong with his health may be very seriously suspected. Either an ox or a horse can be instantly brought to his legs by stopping his breath, without resorting to any of those sickening cruelties sometimes practised upon them. Stopping their nostrils with a cloth, a turf, or a lump of stiff mud or clay, will compel them to rise without a moment's delay. Turning up their muzzle and pouring a little water down the nostril, is another form of the same old and effectual remedy.

JIBBING.

477.—Is the most common and the most incurable of all equine vices. We have shown that it is always the result of faulty education, but nothing in the world will entirely cure it after it has been beaten in to a horse, although judicious treatment will prevent its exhibition under ordinary circumstances.

478.—No two jibs are exactly alike. Each horse will be prone to exhibit the strange weakness most readily under the circumstances in which he has learned it, or in which he remembers to have suffered most. Thus, if he was whipped when first put into the collar, he will always be prone to object to a cold collar, though he may perhaps work fairly well in a warm one, and even pull hard and well after he has been some time at work. Such horses are usually called "collar proud." If, on the other hand, he was properly taught to pull at first, but whipped at some heavy pull afterwards, he may go all right at first, but stick-up when he comes to anything heavy. Others will associate some particular kind of work, some part of a particular hill, some voice, or sight, or sound, with their punishment, and will stick-up, without any apparent rhyme or reason, on the most unexpected occasions.

479.—Thus every jib will require somewhat different treatment, some special precaution, although the object is the same with them all, and that is to restore some confidence in their own power, and to make them forget any ill usage they have suffered, and learned to associate with the collar.

480.—The utmost patience and gentleness under every provocation, combined with very regular rather slow, and sufficient daily work, that will keep the horse constantly associated with the collar, without any of the alarm or suffering he has learned to connect with it, is the surest way to convert a jib into a moderately useful worker. Such horses should never be fed above their work. Grass, roots, or any soft or bulky food will keep them less nervous, and consequently more reliable than too much corn, or hard, concentrated food would do.

481.—Much that we have said on this subject under the theory and practice of breaking to harness, will require to be borne in mind in the treatment of these spoiled horses. The different ways of retrieving a mistake (395 to 399) will often apply here, as well as what we have said under the head of exercise (139, 140).

482.—The collar proud horse, or the horse that is prone not to start well in a cold collar, should have the harness put on some hours before he is wanted to work, and the traces tied tightly back to the breeching, so as to press the collar on to the warm shoulders. If that is not found sufficient to secure a quiet start, the horse may be lounged with the collar so tied, just enough to warm him a little before he is put into the carriage, or asked to pull anything (139, 140). Take whatever precautions of this kind may be necessary to secure a quiet start when first put into the carriage. Under such treatment the horse will slowly but constantly improve, and will ultimately forget the habit with regular constant work, but if once you put him into the collar, and whip him up to it, you will effectually undo all the results of months of careful training. There is something in cold itself, which has a great effect upon these horses, so that you will find that they want more precautions or preparation to start them on a cold day, than on a warm one. This more especially applies to a cold summer day, or to a clipped horse, as horses with fine short coats are more affected by a cold collar than horses with their winter coats on.

483.—The horse that will not pull when the load comes heavily and slowly behind him, is not so easily managed, and the habits of such horses are so various that volumes could not describe them all. For heavy draft, such horses are useless on the road, and should be put to field work, where they generally improve in anything like good hands.

484.—For fast work, if their wind is good, they can generally be got through a bad place, by getting up plenty of speed before you come to it, and driving them fast through it. They will pull at a fast pace when they will not try to pull at a slow one. Choose a place to rest them where the start and pulling will be quite easy. Some of these that have been spoiled after learning to pull well, will pull again, even in a bad place, after stopping awhile, and others will back what they will not pull.

485.—If they stop going up a short hill, it is generally best to turn them round and drive them gently down the hill, then get up steam at the foot of the hill, and drive up it full speed. If you have to whip to get up the speed, whip before you come to the hard pulling, and not whilst they are at it.

486.—Avoid touching the reins if you can help it whilst any horse is struggling at a pull, as it will often stop him. Many horses will pull when left alone, or very nicely led by the noseband or upper part of the head, or guided by a push at the shoulder, that will stop directly if pulled about by the reins or the bit. Most of them will stop if they hear any whipping or shouting, whilst pulling hard. Even a wild rabbit will often stop at the height of his speed, if terrified with shouting close to him. All these are only temporary expedients to get through a journey, or out of some present difficulty.

487.—The only way to permanently improve such horses, is to habitually load them with no more than they can certainly pull, until they forget the habit, cautiously increasing the load as they learn to pull without alarm. The Irish have a proverb that "light loads make good drawing horses" and if any horse is to be kept good, still more if he is to be made good, he must never be asked to do more than he can certainly accomplish. In our youth we knew a miller's horse, a most intelligent animal, that worked at the same mill for twenty years. He had been badly broken and taught to jib as a colt, but when we first knew him he would take five sacks of flour up a very steep narrow lane, leading away from the mill, ten times a day with certainty, without any one near him, but to the end of his life he would never try to take six.

488.—If the horse stops after his shoulders have been warmed, and where the pulling is not heavy, you have a puzzling and very uncertain case to deal with ; most likely one upon which many doctors have tried their mischievous hands. Horses that have long been used in the saddle only, and have been quiet enough to put into harness, at an advanced age, without having been taught to pull (380), or getting any real harness education, are most often seen to exhibit this form of jibbing. When such a horse stops, you will see by his every attitude that he expects to be beaten or persecuted in some way, and yet he sticks up and prepares himself, as if he practically wanted a repetition of the suffering he has learned to dread and expect.

489.—Whatever you do with these poor but provoking creatures you must not oblige them with what they are thus so evidently prepared to receive, but at once direct their attention from the strange fear, fancy, or frenzy that has come over them. Do something that is not likely to have entered into the horse's calculations. Fasten up the reins, so that they will be quite loose on the horse's mouth, and within reach when you hastily return to your seat. Put a handkerchief round one of his fore pasterns, and hold up one of his fore legs for a few minutes, or tie it up to his girth. When the foot is put down, if he shows no desire to go on, take him gently by the head, and get him to go backwards for a little way. Then leave his head and going back to his shoulder, give him a sudden push, first from one side, and then from the other, so as to make him move sideways. When he starts forward, don't stop him to get into the carriage, but get back to your seat without touching the reins ; or failing that, run by his side for a while, and very gently slow him down as much as may be necessary, but do not stop if you can help it.

490.—Sometimes a start can be made by putting your handkerchief round one of his fore pasterns, and pulling the foot forward on the ground, holding it there until the horse brings his other legs up to it, and then repeating the action. In this way he comes slowly into the collar, and finding that it yields to him the strange spell is sometimes broken.

491.—But with the very best possible treatment, everything is uncertain and unsatisfactory with these spoiled animals. We have never seen one we could not start in some way without violence, but we cannot give any one way that would be certain to do it. Failing success in any other way, take them out of the harness, and drive them about, or lounge them (473), and put them in again.

RUNNING AWAY

492.—Is a term applied to an uncontrollable gallop, which may proceed from very different causes, and present very different degrees of danger. There is the self-willed gallop of the hard mouthed horse, who chooses to go his own pace, and in his own direction. There is the uncontrollable gallop, excited by emulation in company, or the determination not to be left behind, so common in the hunting field, or riding parties. And there is the far more dangerous panic flight of the terrified horse.

493.—The two former are little dreaded by a good horseman, although no other should attempt to ride them. A more powerful bit, or what is much better, one of Dwyer's running martingales, which is shortened or lengthened by the rider, under great mechanical advantage, and the head brought into any required position will compel these horses to pay attention to the reins. Harder work or lower fare, or putting them where they will get more galloping than they like, will soon effect a great reform in the manners of such horses.

494.—The panic-stricken horse running away in terror under the impression that some frightful animal has got on his back, or is following on his heels, is a pitiable sight, and one full of danger. His exertions are so desperate and exhausting, and the speed so terrific, that either a fall or a collision is sure to be something very serious, and the horse loses his senses so completely that he is far more likely to run into, than to avoid the most evident danger. It rarely if ever occurs with the well educated horse, but sometimes attacks a half educated saddle horse, like the animal that killed Mr. Johnston at Adelaide (301), and is common with harness horses that have not been taught to work before carriages without blinkers, and to see all that is coming behind them. Such slop broken horses are always liable to catch a sight or sound of something that they have not been reconciled to, and to gallop off in frantic terror. A horse that has once run away in harness, and injured or hurt himself is rarely safe again, and should not be trusted in single harness. Such horses should be consigned to work where their companions, or a strong carriage, harness, and break, in good hands, will securely restrain them.

BREAKING BRIDLES,

495.—Or anything he is tied with, is a habit prevented by careful education (184), but when a horse has once found out what a frail thing a bridle is, when opposed to his strength, it is not always possible to make him again believe that he cannot break it. The most probable way of destroying the habit is to so tie the horse for a while, that he will hurt his tail whenever he hangs back. Get a piece of good, new, small rope, about 15 or 16 feet long. Put the middle of it under his tail like a crupper. Cross the rope on his back, and bring an end down on each side of his shoulder, and tie the ends together securely over his breast Tie a strong cord to this, and passing through his halter tie it securely to something strong. Tie his halter to the same post with a line that the horse can readily break, and six inches shorter than the strong line connected with his tail.

496.—Now roll a barrel, or do something in front of the horse that you know will make him fly back. The halter rope will thus break, and he will receive a severe jerk of the strong rope under his tail, and will find that he is not loose after all. This may be repeated, but the horse will not repeat it many times. After this he should for a week or two never be tied up except with a strong halter, with the halter rope passing round a smooth post, or through a ring, and tied at his breast to the rope passing under his tail, so that when he hangs back the weight will be divided between his head and his tail, and he will take care to put very little weight on the tail. This effects a cure in most cases, but a horse so cured is never so reliable as one that has been carefully tied up at first, and never learned that he could break anything.

BITING.

497.—Horses bite each other, both playfully and aggressively, though even amongst their own species there is a great deal more threatening than execution. The wild, unhandled horse rarely if ever attempts to bite a human being. It is not a very common vice with the tame horse, but is most seen amongst foolishly handled pets, horses that have been teased with boys, or tantalized by timid, fussy, or thoughtless men. Entire horses are more prone to a serious exhibition of this vice than any other description of horse ; but, amongst them all, threatening is far more common than performance, so that for one horse that will viciously bite there are twenty that will warningly or playfully threaten to do so.

498.—We have had something to say about biting under the head of cleaning (59). The large wooden bit there recommended will be found a very simple and harmless remedy or preventative in all mild cases, and will often prevent any more serious development of the vice. Any groom can make one for himself, as it need be nothing more than a piece of round stick, eight inches long and nearly two in diameter, with a small hole bored two inches from each end, through which to put and fasten a piece of strong string, long enough to go over the head behind the ears, and suspend the stick in the horse's mouth. This will both divert his attention and make him feel helpless to bite. In more serious cases, where the horse has become dangerous and aggressive, the formidable gag bridle (357) may be used to any extent that may be found necessary to make the animal entirely submissive.

CRIB BITING.

499.—This curious, disagreeable, and unaccountable habit has been made a great deal more of in horse books than it deserves, and does not lead to colic, or to half the ill consequences usually attributed to it. We have known an ardent crib-biter that never had an attack of colic in his life. The habit may generally be prevented by covering the edge of the manger, or any thing the horse is in the habit of seizing, with sheep skin, with close short wool on it, and well dusting the wool with cayenne pepper.

ROLLING

500.—Is not a bad, but a very good habit with the horse in a state of nature, as it is nature's way to remove and deodorise the excretions from the skin. But when practised in the stall, whilst the horse is tied up, it is apt to get him into difficulties of several kinds. Mischief is generally prevented by tying him moderately short, and always to a weight that will draw in any slack rope out of danger. If this does not prevent the horse getting cast or entangled, he can be prevented from rolling at all, by tying a small rope into a ring, sewn into the top of his halter, at the poll, and bringing the rope over a pulley fixed just above his head and carrying it on to another pulley fixed in the wall or stall post. From this the rope should fall through a small hole or staple, where it will be out of the way, and have a small weight attached to it, at such a distance from the hole or staple, as will allow the weight to rise high enough for the horse to reach the ground with his muzzle, but not to lay his head flat, with his ear on the ground, as he always does before rolling. Of course a far better way when practicable is to give such a horse, or indeed any horse, a loose box and not to tie him up at all.

501.—Rushing through a stable door, so as to strike his hips or sides violently against the door posts, is a habit that a nervous horse soon picks up, and which will get worse every time he hurts himself at it. When a young horse is first harnessed, or whilst little accustomed to stable doors, he should always be led through them without blinkers, which are the cause of the mischief. If this cannot conveniently be done, he may be backed through the door ways with the blinkers on.

FEAR OF BIT.

502.—When a bridle has been taken off a young horse without unfastening a curb chain, or in such a way as to twist the bit in his mouth, hitch it in his teeth, or in any way to inflict serious pain upon him, he will often repeat the mischief, in his impatience to avoid it, until it becomes a habit dangerous to himself, and to those who handle him, from the violence with which he will throw up his head, rush back, rear, and sometimes even strike with his fore legs. When it comes to this it is a very serious business, and one that will get worse if the horse continues to hurt himself at it.

503.—The safest and quickest way to get over this habit is to put the horse down (353), and hobbling his legs so that he can only rise to a natural lying position, put the bridle carefully on and off him for an hour. After that, use a bridle on him in which the bit can easily be unbuckled, and dropped quietly out of his mouth, before the bridle is taken off his head.

504.—A tall horse that will not let you quietly bandle his ears, his eyes, or any part of his head, or body, should be put down in the same way, and kindly, but perseveringly handled until he loses all fear of your hand or your brush upon him.

CHAPTER XVIII.

RIDING,

505.—Or the art of equitation, cannot be learned from books, nor can books render very much assistance. The nerves, the muscles, the eye, and the hand, require to be early practised at the work, or the rider never becomes like a natural part of the horse, nor moves with him as if he could not help it. Perfect riding is mainly a question of quick, easy adaptation to every position a horse can assume. There is no time to think about it; the nerves must act as unconsciously as those in the fingers of a pianist, or a shorthand writer. Some persons learn to ride very well, and to manage their horses quite nicely, who did not begin in childhood, but we have never met with a really distinguished horseman who did not begin very young, and begin in something like the right way. The boy who takes his first lessons on a cart horse, or a donkey, will spoil his bridle hand, and rarely gets light and sensitive with it afterwards. A gentleman has usually a better hand than his groom, though he may not get half the practice, and a lady that has been early and frequently on horseback can often keep a horse perfectly happy under her that would fret under the hands of a gentleman. It is perhaps not merely a question of hand, but of mesmeric influence—of one highly strung and sensitive temperament—better understanding and responding to another.

506.—A man with long legs and short body, though weak at a pull or a push, has a great advantage in the saddle, as he carries more ballast and less top sail. Flat thighs are also a great advantage, but we have seen high class riding where neither of these advantages were possessed.

507.—We cannot say much on this subject that would be useful to the wealthy citizens of London or New York, nor to any one who is within easy reach of a good riding-school, either for themselves or their children; but as we have, without any such advantage, taught a large family of children to ride a good deal better than their teacher, and some of them to ride in a manner that has distinguished them as huntsmen, and successful steeplechase riders, in more than one part of the world, where good riders are not scarce, we hope that it may be useful to record the simple unskilled, and inexpensive means that we adopted for that purpose. Our plan will have at least the merit of being within the reach of any one who keeps a horse, and a source of pleasure rather than of trouble to any father who is fond of his children.

508.—We have often been asked at what age our children began to ride: we reply, six months old, but their first horse was their father. Their first mount was astride of our shoulders, and whilst we held on to one foot, they held on to our hair. At first we were very steady, and never went out of a walk, but it was never long before we were ordered to trot, gallop, rear, kick, plunge, jump, and buck a great deal more than we felt inclined to do. In this way all fear of the elevation, or rough motion, was got over, and the little muscles began to adapt themselves to hold on in any direction.

509.—Whenever we came home from a ride we expected to be met a quarter of a mile from home, by about three children, ranging from two to six years old, two of whom went on to our saddle, and one on to our shoulder.

510.—At about six years old, the teaching began in earnest. We found that the best way to teach the use of the reins was from a gig, or some one horse vehicle. We fixed the pupil securely between our knees, so that either he or she should have no need to attend to their own security, and putting a rein in each hand, we left the little one to steer, and on a very fine mouthed horse, to see the effect of his right or wrong movements. After a good many journeys had been taken in this way, the child, sometimes driving and sometimes watching us, was generally fit to be trusted with the reins on horseback, supposing that he had, with frequent short rides, learned to feel little anxiety about his own seat, and to keep his arms moderately still.

511.—You now want a well broken pony (240 to 255), and if you have got that the rest of the business is very simple. Once more we must guard against the most common mistake in this matter. We have frequently seen parents purchase horses or ponies that were very quiet with constant regular hard work, and then put them to high keep and idleness, and expect them to be quiet still. This is unreasonable. Unless very regularly worked the child's pony should be kept, not in a stable, but in a paddock, and get little or no corn. Until the child is able to exercise it himself it must be exercised for him. Most of the accidents from horses result from half broken animals, and next to that from corn and idleness. Neither you nor fifty servants can make the child safe if the pony is not well broken, moderately fed, and sufficiently exercised. The more you coddle the child the more certain he will be to get amongst the pony's legs, or do something dangerous. It is the pony and not the attendants that you can be sure to make and keep trustworthy.

512.—Put on a small saddle, securely girthed. Tightly roll up a very small blanket, in a roll about twenty inches long, and three or four inches in diameter, and strap it securely on to the front of the saddle. This will prevent any falls, and help the child to feel at home and confident.

513.—Give the child stirrups, and teach him the use of them, whilst you have him and his pony in hand. The time to go without stirrups will be when you first trust him out of your sight. Let the stirrups be a comfortable useful length. Not so long that they are constantly swinging away from the child's foot, nor so short as to send him back out of the centre of the saddle.

514.—The best kind of stirrup irons for a child are those of the modern form used on ladies' saddles. These look perfectly safe, but it is remarkable how every kind of safety stirrup and stirrup iron has sometimes failed in time of need. It is unsafe to rely on any one of them. The only reliable thing is a horse that has been trained to stop the moment a rider is unseated, and to have no fear of a swinging, or dragging child (240 to 255). Very light shoes, that would easily come off, and that present no strong projections, offer more reliable security than any patent safety stirrup irons.

515.—We need not trouble our readers with Major Dwyer's excellent and elaborate directions about sitting on "the fourteenth dorsal vertebra." The only thing necessary to say about that is, put the saddle on the horse's back just behind the shoulder, where it naturally goes, and where it fits best, and put the rider on the middle of the saddle just where he will naturally be shaken to.

516.—Now attach a light rein, about eight feet long, to the pony's bridle, by passing it through the left ring of the bit, and buckling it to the right. Put the rider on the pony, and get on your own horse, and lead off at a steady walk. Don't interfere much with the child. He cannot do everything right at once, and will, at best, only learn one thing at a time.

517.—For a long time the child should use nothing but a single, soft reined, easy, snaffle bridle, which he should use at first with both hands. The first thing to impress upon him is that it must never be used in vain, and that whatever else shakes the bridle hand must be kept steady. If the child cannot ride well enough to attend to this when you first mount him in earnest, give him no reins at all, but lead the pony yourself until he gets seat enough to keep his arms still, letting him steady himself by the blanket if he likes. Some children take to riding as if they were born on a horse's back, and others get on slowly. Give plenty of time in any case, and do nothing to shake their confidence. Your business is to turn out a rider that will never feel riding to be a task ; that will play at riding but never work at it ; that will not only look fearless but will be fearless ; that will not only look safe, but be safe ; that will not only look happy, but be happy ; that will not only maintain a correct position, like the stump of a dead tree, but that can bow and bend, like a living reed, and yet always naturally return to its right position to rest. Formal riders can be turned out by the thousand from any riding or military school; natural equestrians can only be made from the children who play at riding as they play at leapfrog.

518.—When quite happy at a walk, try a gentle jig-jog. Never mind where the legs, or arms, or head, or shoulders go at first. Don't trot much nor ride far, but let the skin be hardened by a little riding very often. There is no hurry; you have not undertaken to finish off your pupils in six lessons.

519.—You will soon find yourself put through a catechism, and that will be your time to get the shoulders, and head, and legs, and arms right. It will not be long before you will be asked—

"Who do you think, father, is the best rider we know!"

"I think Mr. French is."

"Is he! I never saw him ride very fast."

"Good riders do not often ride as if they were racing."

"Then why is he such a good rider."

"He always looks so easy at it, and his horse looks quite happy under him. His arms are still, and his elbows not far from his sides. His legs are still and close to the horse, and he never sticks out his toes, or his heels, and nothing ever moves him far off his seat, or far from the middle of the saddle. His horse always does what he wants him to do, without any fuss, although he uses the reins so lightly, and keeps his hands so low, and so near to his body, that you cannot see that he is using them at all. I think that his stirrups are a little too long, and his feet not quite far enough in the stirrup irons for a safe, useful, rough rider; but he is a pattern of graceful, easy, faultless riding."

520.—"But is not Tom, the butcher boy, a good rider, father?"

"He can stick on to a horse, but he is not a good rider. You see his shoulders up to his ears. He leans forward as if he wanted to go faster than his horse. His elbows stick out, and flap up and down, like the wings of a sick goose would do on horse back. His toes are turned out, and his heels are threatening the horse all the time. He keeps one rein tighter than the other, and his horse has learned to turn his head that way without letting his body follow his head. You can see that he handles the reins roughly, and that his horse is not happy, but takes every movement in fear, not as if he enjoyed going so fast."

521.—Whilst saying this, you will see the shoulders go down, and the little feet be turned straight. Mr. French and Tom will be minutely surveyed when they next ride abroad, and it will not be long before the little pupil will understand all their perfections and faults as well as you do.

522.—A six or seven years old child cannot be taught to mount a horse or pony in orthodox form. He will learn that from some good pattern in after years. In the mean time his pony must be taught to stand in a ditch, or to let him use a box, a stool, a stile, a gate, a bank, or anything that will answer the purpose. With a pony as quiet as a child's pony should always be, the child may often spend an hour with it in a loose box, getting on and off by any convenient aid. He may also be early taught to let down the left stirrup for this purpose and to take it up again after he has mounted. A child that is fond of riding, and that has established a good understanding between himself and a quiet pony, will often discover some very original method of reaching his seat.

Of course a child of this age has no business to be alone with anything but the quietest of animals, but perhaps few persons have any idea how ridiculously quiet some good tempered, well used horses will be with a child that is much with them.

523.—Keep the child riding for years, if you possibly can before you allow him to ride anything but a quiet horse. Avoid falls, not only for the sake of the child's safety, but to keep him as long as possible under the happy delusion that he cannot get hurt. The nerves and muscles will never adapt themselves to every possible call on them so well as whilst fear is unknown and danger unsuspected. When the boy gets twelve or fourteen years old will be time enough for leaps and tumbles. If all has gone well up to that, he will be so completely at home on horseback, and his agility so great, that tumbles are not likely to harm him much. He will be pretty sure to land on his legs, and to choose the best place and the safest company. All our best riding boys would have been killed early if they had not acquired that power; but they soon grew almost as confident of their power to fall off safely, when the horse falls or turns a somersault, as in their power to stay on as long as he keeps his legs. Accidents that would be fatal to men with less experience are treated by such riders with the same contempt as a cool, collected, agile, Spanish matador treats the vain efforts of a bull to impale him. Girls must not risk or recklessly court falls. Their dress and their saddles make it impossible that they can meet them with the same immunity and contempt.

524.—After the tumbling age has arrived the quiet old pony will be despised, and a frequent change of horses will best complete the boy's or girl's education as an equestrian. No two horses require the same treatment, and one of the most important lessons is to learn how to see at a glance whether you have to deal with a nervous flyaway, some illused over free victim, a willing useful drudge, a vicious spitfire, or an unexcitable slug. The slugs will require some severity, and an occasional touch with a spur that would spoil a nervous horse for a month. The illused horses will require much time to recover confidence and a great deal of patient forbearance. The nervous horses should be handled with constant gentleness, and get food as bulky, and succulent as the nature of their work will admit. The spitfires should get constant hard work, and as little corn as will keep them fit for it. For vicious horses see vices and bad habits (444 to 504).

525.—The firmest seated riders we have ever met with, as a class, are the stockmen of Australia. Their horses when yarding cattle or heading a fugitive bullock, gallop like race horses, and turn of their own accord, as short and as suddenly as a sheep dog. We have seen three of these horses put fifteen hundred wild fat bullocks into a yard, with the reins loose on their necks, and untouched the whole time. They watched and chased each fugitive like a sheep dog chases a stray sheep, the stockmen merely sitting on their backs and using their twenty feet stock whips. The sudden drop, stop, and turn of one of these horses would unseat, and dangerously unseat, the best horsemen in an ordinary hunting field. These stockmen would make grand cavalry riders in active service, though perhaps not on parade, as their seat, though perfect of its kind, is not quite the seat for Rotten Row.

526.—No lady can be a good rider who does not sit down in the middle of her saddle, and sit upright. The more weight a gentleman puts in his stirrups the better for his horse, and his horse's back, as it puts the weight low down and spreads it equally over the saddle. But it is just the reverse with a lady, who has only a stirrup on one side, and can put no weight in it without inconvenience to her horse, injury to the horse's back, and danger of putting her saddle round. She must ride by balancing herself on the middle of her horse's back, and holding firmly to the three crutches of her saddle with her legs. Her legs give her a very firm hold of the front of the saddle, so that she cannot be thrown back, and may lean back as much as she likes, especially at a leap ; but she can never safely lean forward, as she is liable to be sent over the horse's head.

527 —A lady has really a firmer hold on her saddle than a gentleman for a straightforward leap, but then she depends far more entirely on her saddle and her girths, and puts a greater strain on them. Nor can she be so well prepared for what is far more difficult than leaping, that is the very sudden turn round which a horse will often take, when his rider is expecting him to go straight over a fence. Nor can a lady ever depend upon falling cleverly, and clearing herself from a falling horse, as her brothers may do.

528.—A lady sometimes gets through a hunt with flying colours when she has a very reliable, well broken horse, and she often shines as a pacifier of a timid, nervous, over-sensitive animal ; but no one looks upon fool-hardiness as a virtue in a lady, and the best lady rider in the world would show wretched taste by taking a badly trained horse to a public hunt, or even by taking very desperate leaps on any horse.

529.—A lady may go to a hunt to see, or to be seen ; to learn, or to teach ; to seek, or to give happiness ; but if she goes there to emulate the rougher and stronger sex in deeds of daring, she is not likely to succeed, and if she did, she would find that she had gained neither love nor esteem. The courage of an Eleanor of Castille, of a Miss Nightingale, or a Sister Dora, will never lack admirers, and will never be eclipsed by the lords of the creation ; but foolhardy rashness will always, and justly, be more admired in the natural defenders of our liberties, than in the peace makers and safety valves of our homes.

530.—No written nor verbal instruction, no riding master, not even any amount of practice, will give the finishing touches seen in an accomplished, early taught, natural rider of either sex. When you have made your seat so secure that you have confidence enough to adopt any style, choose the best model you can find of your own sex, and copy it as closely as possible. The ease, security, and gracefulness of an early taught rider, are almost as subtle and indescribable as that undefinable something which tells us at once whether a lady or a gentleman was born in good society, and learned to talk, to entertain, to act, and to move from habit ; or whether they have been transformed from something else, by learning grammar, deportment, and etiquette. It is the ease and grace of nature contrasted with the restraint and formality of art.

CHAPTER XIX.

DRIVING.

531.—Good drivers are far more common than good riders, especially in England. There is more demand for them. They are often paid for taking other persons' safety in hand as well as their own, and it is an art that can be learned, and learned well, at any age. It is quite possible to sit alongside of an accomplished driver, and to inspect all his movements ; all the calmness and presence of mind needed is soon acquired by regular practice, and anything like desperate daring is by no means desirable. A driver's courage should always be tempered with a good deal of caution, and he should always choose safe ground if he can get it. In riding the natural instincts of the horse ensure himself and his rider against many an accident. In driving the instincts of the young horse tell on the other side, so that they are more likely to produce than to prevent mishaps. With no difficulty about his own seat, a driver's eyes and hands soon learn to judge distances accurately, and to steer steadily, whilst with well broken, well matched, and daily worked horses, it is not at all a difficult thing to drive them very well.

532.—Still a very large portion of the drivers that get through their daily drives with so much satisfaction to themselves and their employers, are only fine weather pilots, who would be utterly at a loss to know what to do with animals less highly civilized than those in their care, or which did not answer the simple signals with which they are accustomed to drive them, and, which, in their blissful ignorance, they fancy that their horses are obliged to obey. In many cases of the most showy and applauded driving, almost everything has been done by the educator, so that little is left for the driver to exercise any skill upon.

533.—No person can be a really accomplished driver, who does not know a good deal about the natural disposition of a horse—why he obeys and when he will be liable to disobey; how to educate him, and how to take advantage of that education. All that we have said about the education of the horse (165 to 443), and especially about breaking to harness (379 to 443), should be read and understood by those who aspire to educate as well as to drive, to foresee and provide against danger, and to rule in a storm as well as a calm. We shall not repeat here what we have treated so fully in the educational chapters.

534.—Let us first suppose that there is only one horse to be driven. You must, of course, understand how your horse should be harnessed, and see before you take your seat, that he is securely and comfortably fastened to his work. Pay particular attention to your horse's bit, and if it is a curb bit, see that the curb chain is not too tight, and that you have not too much leverage on the horse's jaw. If you are a novice at driving you had better avoid curb bits and chains, and if you have complied with our directions in educating a horse to drive yourself, he will not require such severe restraints. If the horse's mouth is decidedly hard, you had better use a ring bit.

535.—Take the reins in hand before you put your foot on the step, but do so without interfering in any way with the horse's mouth. If the horse is a free, nervous animal, hold him very lightly, and speak soothingly to encourage him to stand for a few seconds after you are seated, and then let him walk quietly on, without a touch or a tick, and walk a hundred yards before you let him go at a slow trot, and gradually increase it until he arrives at the pace you intend to travel. The more free and nervous your horse, the more careful you must be never to start him off in a hurry, or you will spoil him for standing, and very likely for starting.

536.—See that there is no twist in the leather of either rein, and as you hold them straight in your right hand put all the fingers of your left hand between the reins. Bend the right hand rein, at the fore finger, and the left hand rein at your little finger, letting them pass over each other inside your fingers, and closing your hand upon them. This gives a firm hold of both reins, in such a form that a twist of your hand will shorten either rein, quite enough for guiding purposes. Adjust the reins to such a length that you can feel the horse's mouth, with your body upright, and your rein hand about eight inches in front of your lowest rib.

537.—The lightness with which you must use the reins, will depend upon what horse you have to deal with, or rather upon what other persons have been doing with the same mouth. One horse will rear, and run, or fall backwards with a pull that another horse will not notice at all. One driver will teach his horse to stop, or guide, with a pull that might be given with the finest cotton thread, whilst another will compel the horse to draw the carriage with his mouth, or what is still worse, teach him to go faster when his mouth is jerked with the reins. Your business will be to find out how little pulling will stop, restrain, or guide your horse, and use no more than you find necessary to effect the object you desire.

538.—Never use the reins for anything but their legitimate purpose, and that is to guide or restrain, never to urge or to punish. Watch the effect of each guiding pull, and desist before your horse has diverged quite far enough ; don't pull him too far and then back again. Keep your horse up to a lively sense that whenever you pull a rein you mean something, and never let him be inattentive to any signal. If he is not too free to bear a whip, touch him lightly on the left shoulder, if he does not instantly answer to the right rein, or on the right shoulder, if he neglects the left rein. This will soon make him attentive to the reins, even though his mouth has been made hard.

539.—Let your right hand always be ready to assist with the reins if necessary, and in any emergency take a rein in each hand. Such cases will constantly arise with a young or ill-broken horse. A horse that has been whipped for shying will often make a long, dangerous plunge, and a gallop to one side. Here mischief is often caused with blinkers, by holding the horse's head round towards the object that alarms him, and away from some real danger upon which he may be blindly rushing. In such cases it is often wise to reserve the pull, and force his head towards the real danger, rather than let him dash your wheels into it. A horse will generally contrive to avoid a danger that is made evident to himself, and even if he is too excited to do that, it is often choosing the least of two evils. Thus we have sometimes put the horse into a ditch, rather than let him turn the carriage over into it, and we once put a runaway horse up into a heavy stone dray, in preference to letting him dash the carriage at it.

540.—Bearing reins are less used every year, Miss Sewell's "Black Beauty," and the energetic appeals and well told facts of Mr. and Mrs. Flower, on this subject have done wonders. It is not necessary to deny their possible utility in a few exceptional cases. When a lady has to drive a horse of somewhat doubtful docility, it is convenient to have a bearing rein short enough to prevent the horse putting his head lower than he naturally carries it at his work. This may prevent him from pulling hard on her hand, or pulling the reins out of them, from getting his head to the ground, from hitching his bit on the pole or shaft, from rubbing off his blinkers, or even from sending up his heels. When the bearing rein is used to this extent we have nothing to say against it.

541.—But vain, thoughtless, and ignorant owners and drivers have not been satisfied to use it in such a way. Some unfortunate animal with all the life whipped out of him, with the muscles cut from his tail so that he cannot put it down, and with his mouth forced into the air with iron and leather, is supposed by such judges of horse flesh, to be an imitation of the beautiful natural attitude of an animated horse, carrying his own head and tail in the air. Unobserving ignorance has often concluded that a horse was less likely to stumble or fall down when his head was tightly fastened to his tail.

542.—It is not possible to understand the extreme cruelty of this tight reining without inquiring for a moment what provision nature has made for carrying the horse's head. His head does not rest perpendicularly over his body as ours does, but is supported at the end of a long horizontal lever, like the weight at the end of a steelyard beam, so that like it, it requires a hundred times more power to support it than it would do if the weight were close to the shoulder. The leverage of the neck is so great that it would demand muscles at the withers equal to lifting several thousand pounds to support the horse's head at the end of his long neck. But instead of such heavy muscles that would greatly retard the horse's speed, nature has made provision to sustain this great weight with a strong animal cord, or a very powerful and slightly elastic ligament. This provides for bearing the weight without fatigue, but only for bearing it at a certain height. With this provision the horse can even go to sleep whilst standing, and this strong ligament, called the pack wax, will support his head at the exact height for which its length is adapted, without any muscular effort, or any nervous supervision. When the head is wanted lower, as for grazing, there are muscles in the neck which pull it down, and stretch the strong elastic cord enough to let the horse's mouth reach the ground. When it is wanted higher, there are other muscles strong enough to lift the head for a little while. But the higher the head goes the less the pack wax takes of the weight, and the muscles are by no means strong enough to sustain the weight, without the assistance of that cord for any length of time.

543.—We can soon form an idea of the pain that results if we try to hold our arm straight out from our body for ten minutes. We can lift that arm to a horizontal position with considerable force, but nature never intended it to be kept there, and has supplied no muscles strong enough to support it long in that position. We can lift it up and down for twelve hours a day, but we cannot keep it in an unchanged, horizontal position for a quarter of an hour without absolute torture ; torture so great that we should gladly rest our hand on the point of a needle, or on a bed of thorns or nettles, rather than not rest it at all. So it is with the horse. His small neck muscles cannot support the weight so far above the natural angle as to get no assistance from the pack wax, and he is therefore when tightly reined up obliged to let the weight of his head rest on his sensitive, tender, foaming, or bleeding mouth. Nature in time will make that mouth less sensitive—more fit to roughly encounter iron without pain, but far less fit to pleasantly respond to the gentle touch of a lady's hand.

544.—You may use a bearing rein if you like to restrain a horse's head where nature intended it to rest, but you commit an act of wanton, destructive cruelty when you put a crushing weight on muscles which are unfit to sustain it, bring his sensitive mouth in violent contact with a fixed iron bar, and try to carry on a piece of unyielding leather, the receptacle of all those magnificent senses for which nature has provided such a perfect and elaborate spring balance.

545.—In Britain, and British colonies, you turn to the left when any one requires to pass you, and when you meet anything except led horses. By the same rule you must of course go to the right when you are going to overtake anything except led horses. This exception is made in passing led horses because it is less dangerous or embarrassing to their leader to have his led horses frightened, or driven from him, than towards him—to have them pull back and away from him, than to rush forward and towards him, or towards each other. Under this rule too, a man with a string of horses never requires to cross the road at all, but keeps the right hand side, and lets everything pass or overtake him on the side he rides.

546.—When meeting or overtaking loose driven cattle or sheep you may take either side that offers the clearest course, but drive slowly, as however awkwardly they may run under your horse or wheels, you are responsible for any injury to them or to yourself.

547.—Never aim at display in driving, it will always tell against you. Try no close shaving. Give especially plenty of room to lady drivers, to old men, or to young timid horses. Stop rather than drive any one into a mess. Get out of the way of pedestrians, if you can, rather than drive them into the dirt. Leave the most level part of the road to high, top-heavy loads, whether they are entitled to it or not. Do as you would be done by, with everybody and everything, and don't foolishly get out of temper because other persons may not treat you the same, or do not even kown their business. You may gain much by such conduct, and will never gain anything by the reverse.

If anyone wants to overtake you, hold back rather than push on, and don't challenge them to a race. Few things are more undignfied than that. Choose your own pace, and let no one else choose it for you, and let it be a pace that your horse can do without distress. No one will think the better of you for over-driving an animal. We were once on a four horse coach, in Somersetshire, when a celebrated Chartist orator drove past us with a fine trotting pony. He evidently thought that he or his pony would make a favourable impression on the passengers. The coachman gave him plenty of room and did not hurry his team in the least to avoid being overtaken, but when he was past, quietly said "That's just how he would drive us all if he had the chance."

548.—As to the pace at which you should drive, everything depends upon circumstances. If you are driving an engine to a fire, or a surgeon to a patient, where human life is at stake, drive twenty miles an hour, or as fast as your horse can hold out to complete his task. If your time is of great value and your horses are in first-rate working condition, and not wanted to do more than ten miles a day, on a good road with a light load, you may drive ten or twelve miles an hour. If the same horses have to do over a hundred miles a week, they should not be driven more than seven miles an hour, unless their work comes in very short stages. If you have a good, quiet, safe, family horse, that you want to take care of, let him go six miles an hour. He will always do far more on an emergency ; but when you have got a good trusty horse don't stiffen and destroy him in a year or two by always hurrying him. But don't overload him with fat. Let him work moderately every day, and not be overdone with corn. If you drive a grass fed horse, or one that gets no shelter at night, or a brood mare, you may drive six miles an hour in summer, but you must be very moderate indeed in your demands on them in the winter. Any horse in any cold or temperate climate is capable of far more speed and endurance in summer than in winter. A well-bred small horse may be driven faster and farther than a large heavy one. A very fat horse is never fit to go fast.

549.—Always keep the wheels of any carriage you drive on the broadest and smoothest part of the road. The immense difference that this makes to the draft will only be realised by those who have tried it on any vehicle, propelled by their own muscles, whether it be a perambulator, a bicycle, or a wheelbarrow.

550.—You may either teach your horse to depend entirely on your guidance, and pick every inch of the road for him, or you may encourage him to pick the best road for himself, and to pass vehicles on the correct side, without much interference from you, leaving his mouth alone as much as possible. The former, when well done, is the best driving, and with some inferior horses, is the only good driving, but it demands uninterrupted attention to your horse, and spoils him for driving in the dark, when he alone is qualified to pick the road.

551.—A stumbling, sluggish horse, must not be left long to his own devices. It does no good to stiffly rein him up, nor to practice him over turnip fields, nor to hold his head staring up to the sky, nor to punish him every time he stumbles, but it does a lot of good to keep such a horse thoroughly awake, to give him a wholesome fear of your whip, and to insist upon a lively step with eyes on his work, his ears listening to your voice, his head a little back, and his mouth paying attention to every move of your rein. Such a horse is in fact more fit for the manners and customs of a butcher's boy than for those of a gentleman, far less of a lady.

552.—Absent-minded, careless, inattentive drivers, often get their horses into bad habits that are very difficult to eradicate. One of the most common is a habit of boring to one side of the road, and hanging perpetually on one rein. When such a habit has been formed, it will take a lot of time and patience to cure it. The first step must be to change the bit, which the horse has learned to pay no attention to, and use something that will introduce a totally different sensation to his mouth. Avoid curb bits in this case, as with them a side pull is so much like a back pull, that any horse may be excused for mistaking the one for the other.

553.—With the changed bit you must let the horse understand that there is a change of discipline. You must allow no inattention to the rein, but let a tap of the whip immediately follow any neglected signal. You must on no account keep the horse in his place by a steady pull on one rein, but if he gets to one side, fetch him back to the right place quickly, with whatever rein force may be necessary, tapping his shoulders with the whip, and scolding him at the same time, but slacken the rein directly you have brought him far enough. You may have to repeat this a hundred [or a thousand times, and may make up your mind for a great exercise of patience. Of course you could not do this in the streets of a city, but the habit could not be formed there, as in a town, a horse must be kept obedient to his signals.

554.—There is a quicker way of getting over the difficulty, but it is better avoided if possible, as it is apt to still leave the horse with a one-sided mouth. You may wind a strip of flannel thickly round that side of the bit to which the horse is inattentive. If that fails you may get a snaffle bit, cut at the joint, and substitute a short bit of small chain for one side of the bit.

555.—Driving two well matched horses abreast is not more difficult than driving one, and it is far more pleasant and safe. It will require a little more arm power, and some attention to the correct adjustment of the forked reins, but two horses go far more cheerfully than one. They naturally choose a space wide enough for the carriage to follow ; they usually counteract each other in any wayward movements, and so long as one horse will not run away the other cannot. The case is not much altered where three horses are driven abreast. It is perhaps the most easy of any team to drive in a city, as wherever there is room for the seen horses, the driver need not concern himself about his unseen wheels.

556.—Driving two or three horses one before the other is a far more difficult task. It is seldom done for anything but display, and even in that respect is generally delusive, as no man will be very successful at it unless he has a leader that can be trusted to give him very little trouble—a free, bold, docile animal that will keep well out of the way, that knows his work, and that will turn round at nothing. It is true that such a horse would not be kept good long, unless driven with some judgment, but the best of tandem drivers would cut a poor figure with a leader that turned round to look at him.

557.—With four horses, two abreast, one leader counteracts the other, so that neither of them could turn short round so suddenly as a tandem leader may do. Still the off-side leader should be, and generally is, a bold animal, well inured to the sights, sounds, and scenes he will have to pass.

558.—Driving a fast four-horse team safely and well is a work of very considerable skill, and one that is not learned in a day. It also demands at least a good average amount of weight and strength. It is not merely that you have to deal with four mouths instead of one or two. That would by no means represent the difference in the power required. Each mouth will demand far more than a proportionate force upon it to enforce obedience. Four horses excite each other very much at any fast pace, and as no one horse can either guide or stop without his mates it would be quite unsafe to teach them to stop suddenly to any signal, even if you could do so. But each horse soon finds out that he cannot stop suddenly without some unpleasant consequence, and hence the long, strong pull that is wanted to stop, or to restrain a four-horse team, and the severe bits that are so generally used to do it.

559.—No man has any business to take four horses in hand until he has well learned to drive one or two, and then he should begin with an experienced driver at his side, who can relieve his arms occasionally, and take the reins down hill, round turnings, or through cities. At our ploughing matches we generally find that the youngest boys have the oldest horses. So it should be with a coachman. If he has his business to learn, he must take care to begin with horses that have well learned their work. No unpractised hand can be either strong or skilful enough to drive four horses that have their work to learn, and need a good deal of steering and restraining. With a four-horse team it is easy and safe to put in one horse at a time that is new to the work, but a collection of four lively horses, unused to the excitement of galloping together, must be a dangerous team in any hands, and one which there can rarely be any necessity to undertake.

560.—In driving four horses the leaders' reins may be taken with all the fingers of the left hand between them, just as directed for the reins of a single horse (536). Those of the wheelers, or hind horses, must be held in the same hand, but with only two fingers between them instead of four. The fore finger will thus separate the two right hand reins, and the little finger the two left hand reins, whilst the two middle fingers of the left hand form a wide and distinct separation between the right and left hand reins of both leaders and wheelers. By this arrangement a twist of the left hand will turn all the four horses to either side, affecting the leaders first and most as it should do. The regular order and complete separation of all the reins will enable the right hand to soon learn without a moment's thought to seize either rein, or either pair of reins that may be required, for a turn or any other manipulation, and to drop them again without disturbing their hold, length, or position in the left hand. The right or whip hand can also easily be placed at any time over the left hand, to assist at a pull, or to rest the muscles of the left arm. In fact with hard pulling horses this will be its general position except when required to use the whip.

561.—Many more complicated methods of holding the reins have been described and recommended, but this simple winding of the leaders' reins round all the fingers of the left hand, and of the wheelers reins round the two middle fingers only, is at once the simplest, strongest, and best, and is adopted by mountain drivers, and by men of the most severe practical experience in various parts of the world. With four horses the hands may be held a little further forward than with two, as it gives more play and strength for a pull, but the body must be kept upright, and the elbows near the hips.

562.—At straightforward running you will want to interfere very little with the reins of the wheelers, as they can hardly help following the leaders, but when it is necessary to stop, the wheelers' reins must be tightened first. The leaders must be stopped slowly, and allowed to keep well away from their swingle trees. With a good break, which you should always have, your leaders may keep well out to their collars, even when stopping or going down hill, but down steep hills your wheelers should be held back in case of any accident to break. You need not be afraid to use the break sufficiently, going down hill, as it is rather a relief to a horse's legs to be allowed to pull a little down a steep hill, and it makes everything safer to keep the break well on. Go slowly down the first part of a hill, and gently up the last part.

"Gently up, and steady down,
Push away on level ground."

563.—In turning round corners your leaders must go far enough round, but should not pull at all, unless you are going slowly up a steep hill. Their traces should be slackened, and the coach turned with the wheelers. The pole is strong for a straight pull, but is weak for a side pull, and it is in every way unsafe ever to let your leaders pull across the pole.

564.—Reserve your leaders as much as you can, as it is quite essential that they should be fresh and free to the end of the stage. Almost any horse that can go, and will not fall down, may be used as a wheeler in a four horse team. He cannot run away, he cannot shy far, and you can reach him easily either with whip or reins. It is not so with a leader. He must be a horse that can be trusted. He must be free enough to require little or no whip, bold enough to pass any object he meets, yet have eyes to see and avoid any real danger. Quiet enough to let anything touch him without kicking, sensible enough to pick his own way, or to keep any way that may be shown him. His action should be showy, and must be safe, as he cannot fall without bringing himself and the whole team to grief.

565.—When six horses are regularly required they are best driven three abreast, in which case the driving will not differ much from that of a four horse team. But it frequently happens that six horses are only wanted for a part of the journey, or under some exceptional circumstances, so that they must be driven two abreast, with a single pole and other four horse appliances. In every country where more than four ordinary horses are driven two abreast, on ordinary roads, the leaders are taken in hand by a postillion, which leaves the coachman no difficult task to follow with the rest of the horses. Very long teams of plough horses used occasionally to be seen getting her Majesty's mails through the snow in this way. In England, France, North America, and many other countries, circus teams of any length may occasionally be seen nominally driven from the box, but really taught to go with little or no driving at all. In some parts of South America, Australia, and New Zealand, six horses, two abreast, may be seen driven by one man, through long straight, sandy tracks, where there is, in fact, nothing to do but to hound the poor weary animals along.

566.—Even the practised, daring, skilful drivers, who drive a leather spring coach across the middle island of New Zealand, though obliged to use six horses through the sands, never attempt to handle more than four horses up and down the mountain zig-zags, where both hind wheels are often kept from turning round at all by their powerful breaks, and great steadiness and sagacity is demanded from the leaders.

567.—In South America, mules are more used amongst the mountains, a habit probably introduced from Spain. They are perhaps better with the average driver, although they never make the pace that good horses will do. They are not so excitable ; they are more easily made reliable at a pull ; they are far more certain to take care of themselves ; they are even more clever in ascending and descending excessively steep places than either the horse, the ox, or the zebra ; but in running down ordinary hills they are far more liable to stumble, or fall on their knees than an ordinary horse.

Of course restive, jibbing, badly broken horses are utterly unfit for mountain work, but well broken, well driven, and regularly worked horses, that are not in excessively high condition are decidedly safer than mules where pace is required down steep hills.

568.—The whip for a moderately free horse, or pair of horses, should be light and long, and be used with caution and judgment. Great mischief is often done by touching a horse with the whip as the first notice that you want him to go on. The result being that the horse is afraid to stand still a moment after he is fastened to a carriage, and will often go backwards if he cannot go forwards. One foolish cut from a whip will often spoil such a horse for the rest of his life. Unless you want to spoil a horse for standing or starting, use some well understood word for starting, and let the whip alone at first.

569.—With a very free horse, it is desirable to cautiously accustom him to the sound and feel of the whip lightly drawn accross him so as not to hurt him at all. This will prevent him from rushing whenever you take the whip in hand, and make it possible to touch up a slug by his side. A slow, easy going horse on the other hand should never feel the whip upon him except to hurt him. Ladies, and tender hearted drivers, often do great mischief to such horses by constantly flicking at them until the horse cares no more for the whip than he does for his own tail.

With such horses a pretty heavy whip should be used, and used not often, but so that they will feel it and know what it means. A horse that will not move, and move quickly to the whip, is neither pleasant nor safe.

570.—Unless a horse is known to be very quiet and unexcitable, he should never be whipped on the hind quarters, as it often tempts a horse to kick. Strike him on the shoulder or fore leg, and if he does not answer to it immediately strike him harder. It will not hurt him so much as jerking his mouth with the reins, and you had better do it yourself than be obliged to sell him to some one that will drive him, and whip him without measure or mercy. There is as little real kindness in spoiling a horse as there is in spoiling a child.

571.—A lady's horse should not require much whip, as a flogging lady is not a pleasant sight, but as a matter of fact, the easy tempered horse that requires a real touch of the whip, is a far less suffering animal, and is far more safe for a timid driver, than the nervous animal that is always anxious to go from a sense of fear. No well fed, well bred, and moderately worked horse, will be likely to want much whip, but the most mild and trustworthy animals, such as a lady can securely drive, are almost always the better for knowing that there is a whip about, and a hand that can use it. We have known some ladies who, after a serious accident with over-lively horses, have come to the conclusion that no horse is safe that will go without a whip. The young lady who has learned to ride does well not to tolerate a horse that requires the whip, but the matron that wants to go safely about with her loved ones, will feel all the more secure with a harness horse that is always willing to take things easy.

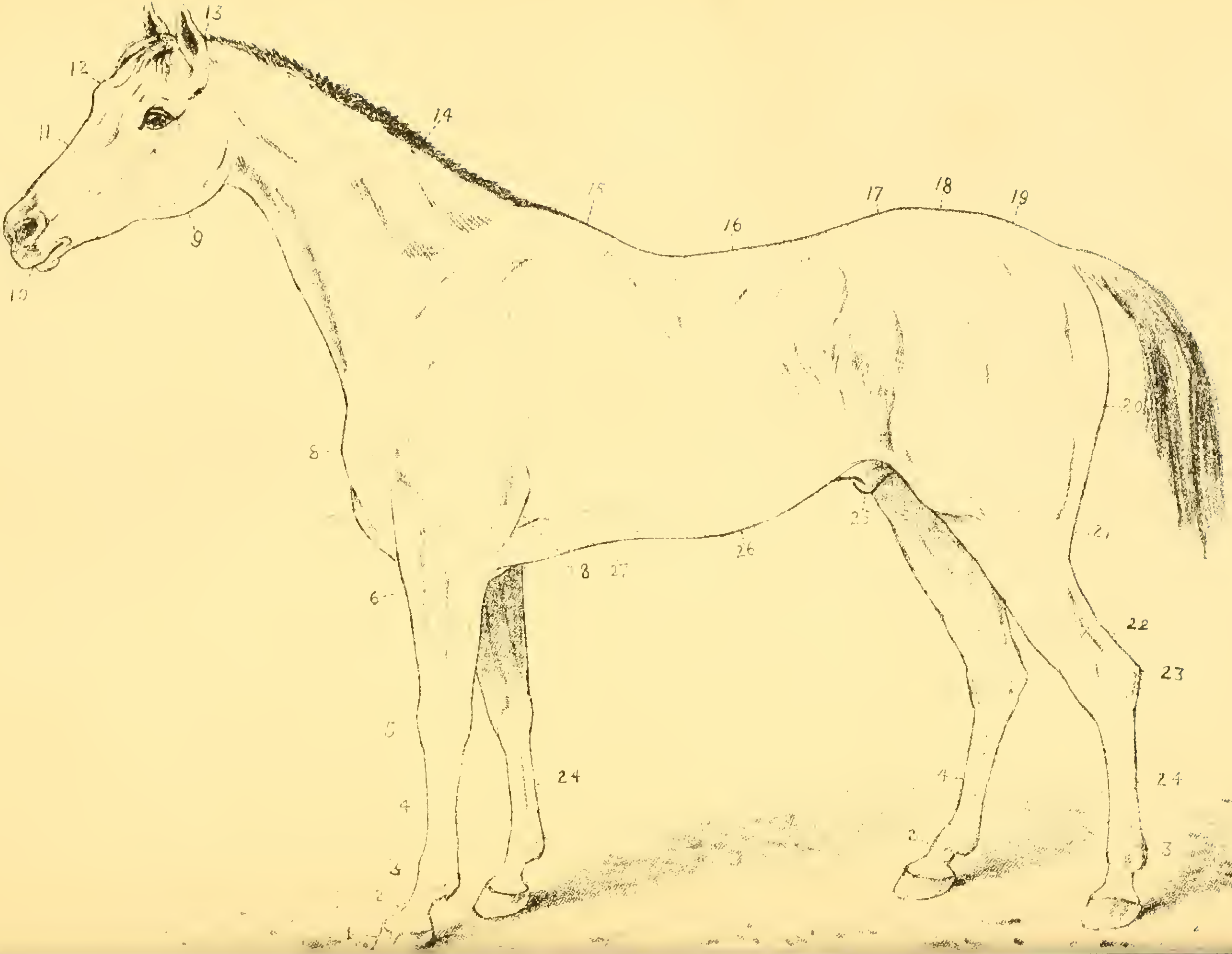
572.—We once saw a magnificent carriage with a pair of fine dark bays come out of a stable yard at Bath and drive under one of the large arches that support Bridge Street, to a quiet lane, where the driver gave one of his horses four or five severe cuts with a light whip, at the same time holding both horses back until they appeared ready to fly through the harness. He then drove to Pulteney Street and took a lady into the carriage. On his return to the yard, we followed him in and spoke to him about the whipping. We found him obsequiously civil, and evidently alarmed. He said that his near-side horse was a free, hot tempered creature, that he could hardly hold back, and that the off-side horse was a quiet tempered, easy going animal, that wanted an occasional touch of the whip, but when his lady was in the carriage she would not allow him to be touched, so that he had to take him somewhere and give him as much whip, before the lady got in, as would keep him up with the other horse until she got out again.

573.—After due consideration we thought it as well to go no farther with our interference, but to leave the good tempered, well fed, happy looking horse to the enjoyment of his present luxurious life, with the slight drawback of five cuts a day, rather than do anything that might hasten his transfer to the weary toil and the heavy whip thong of a Hansom cab.

574.—Most boys learn to use the whip with moderate skill but girls do not, so that ladies are often laughably helpless with a whip, and perhaps pride thmeselves on being so, but a lady intending to drive should practice using the whip on some inanimate object, so far as to be able to rely on applying it on the right place, and with the right degree of force. In judging of the degree of severity with which the whip should be used, it is necessary to consider, not only the temperament of the horse, but also the state of his coat. A coarse skinned, low bred horse, ill fed and little sheltered with his thick winter coat on could hardly be made to feel a light gig whip, whilst a fine skinned thoroughbred, with its short summer coat, would wheal almost as easily as a child's naked skin. No lady's horse should require as much whip as to make it necessary that she should keep the whip in hand, as she will not pride herself on the attitudes of her whip, but will prefer leaving it in the socket as much as possible, with both hands free for the reins when necessary.

575.—In any long team where distant leaders have to be reached with a whip, a considerable amount of real skill is demanded, which should be acquired before attempting to drive, as it is really dangerous to sit within reach of a long thonged whip in the hands of a bungler, and the wheelers' heads are also in jeopardy. The box of the coach, when no horses are in it, will be the best place to practice this, as you must learn to reach your leaders without endangering your passengers, and to touch free animals up without cutting them up. There is considerable difficulty in using any long thonged whip without striking too severely with it. It is also necessary to learn to carry the whip gracefully, without thinking about it, with the end of the thong wound round the handle, so that the doubled thong can be used on the wheelers, or the whole length of the whip set free with one hand, to reach the leaders. It will too be found to require no small care and skill to prevent getting such a whip hitched in some part of the harness. This is, however, a part of a driver's education that is not often neglected, as boys are often too fond of a whip, and drivers are far too prone to display their skill with it, at the expense of horses that require no such exhibition.

For driving slow heavy horses see breaking to slow draft (404).



COMMON NAMES FOR VARIOUS PARTS OF THE HORSE.

1 Hoof
2 Pastern
3 Fetlock Joint
4 Shank
5 Knee
6 Arm
7 Breast
8 Point of Shoulder
9 Lower Jaw
10 Muzzle
11 Face
12 Forehead
13 Poll
14 Crest
15 Withers
16 Back
17 Loins
18 Hip
19 Croup
20 Quarter
21 Thigh or Gaskin
22 Hamstrings
23 Hock
24 Back Sinews
25 Sheath
26 Flank
27 Girth
28 Elbow

CHAPTER XX.

SELECTING A HORSE.

576.—There is such a vast difference in horses, both constitutionally, and educationally, that a proper selection is an important and often a very difficult business.

SIZE.

577.—Where weight has to be moved the horse should be large and heavy in proportion to it. Height does not give power but weight does, and a horse cannot move great weights without it. The little pair of horses we so often see at plough, must necessitate either shallow ploughing or light land, and we have far more faith in the crop of wheat or beans to follow, where we see a pair of heavy Shire horses putting out all their strength, on a single furrow, or four of them on a double furrow. The light horses will travel over the soft ground at harrow better than the heavy ones, but where a deep furrow of tenacious clay has to be turned over we must have the weight to do it.

578.—In horses, as in most other things, the utmost quality never goes with the utmost size; seventeen hands can seldom gallop away from fifteen, and it is almost always a mistake to select a large horse for fast work. Five feet two inches high, and a thousand pounds weight, is the size beyond which you need never go where speed is a principal object. When the journeys are long, and the load light, a still smaller horse will be better. Fashion and appearances may demand height or size, but five feet high is all you want for daily hard work.

COLOUR

579.—Is more a matter of taste than anything else. There is very little in all the overdrawn theories that have been worked up, and all the violent assertions that have been made as to the connection between colour, temper, and usefulness. The English, French, and American theories contradict each other, and wherever two theories on this subject have agreed they are evidently copies. You can find either irritable or soft horses of any colour. Chestnuts are often hot tempered ; greys are often very docile. There are more greys amongst the illused horses in Paris than amongst the better used horses in London, and they are getting more numerous in America. They are banished from the East Indian artillery. They have not been successful on the racecourse, and are little favoured there, but this is easily accounted for. No horse has been very successful on the racecourse for many years past that does not carry down more or less of the blood of the once despised Godolphin Arabian, and as he was a dark bay, they were not likely to carry his blood under a grey skin. So that we need not wonder that more than half the winners of the Derby and St. Leger have carried the same colour as the ancestor to which they owe their speed. As those favourite sires, Childers and Eclipse, were chestnuts, it is natural that that colour should stand next to the bay in the number of winners that have carried it, as well as the white nose and pasterns of the Newmarket flyer. Greys are troublesome to keep clean, and as they change their shade of colour twice a year, and get lighter in an uncertain degree as they get older, it is impossible to keep them matched. Browns, dark bays, and dark chestnuts, with little or no white about them, are on the whole the best colours. There is little or nothing in the old theory that the white leg was always the weak leg, but it is the leg that will always want most cleaning, and then will not look so well as a black leg. White faces belong to many of our very best horses, but they would look much better without them, and where such undoubted quality can be got without them, it is a pity that they are not bred out.

TEMPERAMENT.

580. - In any animal wanted for work temperament is a

very important consideration. Phrenologists, physiognomists, and physiologists, usually speak of four temperaments: the nervous, fibrous, sanguine, and lymphatic. But the way that these terms have been generally used has tended rather to confuse than to simplify the ideas of most persons on the subject of temperaments, as they are too often referred to, and understood, as if each temperament was something distinct in itself, and not merely a name given to each individual's estimate of the different proportions in the combination of the same elements. To speak of pure temperaments, or even of good and bad temperaments, is misleading. All that can be meant by such terms is a desirable or undesirable combination or preponderance of nerves, or blood vessels, in the structure of the animal tissues.

581.—What we call lean meat, is a collection of blood vessels, fibres, and nerves, and the temperament of an animal depends upon the proportion of each distributed through his muscles, and upon the strength of the controlling or supplying power with which they are connected. Thus, if there is a more than usually large proportion of nerves, and they are connected with an active brain, we have the restless, excitable, nervous temperament. If, on the contrary, the blood vessels, or feeding tubes predominate, and they are connected with very capacious digestive organs, we have the fattening, sleeping, easy-going, lymphatic temperament. If the nerves and blood vessels are each in moderate proportion, and the fibres are large, coarse, hard and strong, with the nerves of motion more potent than the nerves of sensation, we have the useful, active, enduring, fibrous temperament. The term sanguine temperament is applied to any due combination of nerves, blood vessels, and fibres, connected with heart and lungs, large and good enough to highly purify a large quantity of blood.

582.—Thus we see that no horse's temperament can be too sanguine or too fibrous, but it may be too nervous or too lymphatic. In other words you want, in every horse, large and good heart and lungs, and well developed, strong, enduring muscles; but you want a totally different degree of nervousness in the race horse to what you could tolerate in the dray horse. In the one you want a horse that will nearly kill himself in two minutes, rather than be overtaken; in the other you want a horse to contentedly strut about the streets of a city, with a glossy coat, a great load of beef, and allowing nothing to move him from the even tenor of his way. You cannot speak even of either of these extremes as good or bad. Both are good in their place.

583.—The large heart and lungs of the sanguine temperament must be present in every successful racer, but every race horse must also be highly nervous and highly fibrous. The different proportions of these two temperaments, in different race horses, often quite imperceptible to the eye, is what principally decides the distance at which they are best. If only duly nervous the horse will be a long stayer, if excessively nervous he will exhaust his best powers in the first half mile.

584.—The highly nervous horse can never be mistaken. Every portion of the body, and every motion will give some indication of that temperament. The skin will be thin and sensitive, the bones small, the pulse quick, and easily affected by any thing done to, or near the horse. The thin lips will be highly compressed, the prominent eye will catch everything that moves, either far or near, and the small, thin, transparent ear will be in frequent quick motion. The walk will incline to a dance, and the gallop to a rapid succession of springs.

585.—The fibrous temperament will be distinguished by a calmer activity, by a fuller development of well packed and well defined muscles, by somewhat larger bones and sinews, but still hard, clean, and wiry. The lips will be equally compressed, the eye more calm, the ear almost equally quick in its movements, but kept longer in one direction. The skin rather thin but not so sensitive; the movements rapid, free, fearless, and prodigal of force; the walk more progressive and less dancing, and the gallop a long, fearless, forcible stride.

586.—The lips will give the first indication of a very lymphatic temperament. They will hang loose, be soft and flabby, and not closely compressed, the lower lip often hanging below the upper one. The ears will be large and thick, and slow in their movements, and often held long without motion. The muscles soft and flat, not standing out in defined rolls as in the fibrous temperament. The sinews less wiry. The head dropped low, the jaws large, the forehead narrow, the eyes not prominent but mild, the temper easy. The old fashioned gummy legs, narrow and shallow chest, and deep belly is now rarely seen.

587.—The very nervous temperament is fast and showy, fit for short excited exertion, careful management, and gentle usage, but no nervous man or woman should venture on a very nervous horse. Such horses get sobered down with age, hard work, and bulky food, and in good hands, often make very useful old horses. In bad hands they suffer intensely, and sometimes suffer long, but often wear out early, or break down with some desperate effort.

588.—The fibrous, temperament is free, strong, and enduring, working with ease and pleasure, requires no excessive care, and is little prone to disable itself with fat. It is emphatically the useful temperament in a horse, and should be selected by all who want a horse for useful steady work, day after day.

589.—The lymphatic is the easy going temperament. In great excess it is soft and incapable, but in moderation it is the temperament to endure excessively indulgent, excessively exciting, or excessively cruel treatment. Such a horse will give satisfaction to an indulgent owner, who wants him to display a glossy coat, and to behave quietly without any exhausting work. He can be trusted to move railway waggons amongst passing trains. He takes the cruel curb chain, the torturing bearing rein, the rough voice, the wanton blow, or the brutal kick, without affecting his appetite or his spirits.

HEART AND LUNGS.

590.—For the sanguine temperament wanted in every horse, the heart and lungs must be large and good. Of these we can judge something by the frame that contains them. If the chest is small and circular there will not be room for enough heart and lung power. If it is large and circular there will be room for large heart and lungs, but still the lungs will only be able to work by pressing on the other vital organs, as a circular chest will resist all efforts to expand it. If the chest is deep and capacious it can expand and contract with every breath, and can thus meet any extraordinary demands made upon it, provided the lungs are healthy and good and the heart, air passages, and supplying pipe, are all duly proportioned to them. But all these ifs and buts can only be securely decided by a trial of the horse's wind power, under severe exertion. We cannot look inside, and if fifty things are right and one wrong, that one will put its limit on the horse's breathing power, and consequently on his capacity for exertion.

THE HEAD

591.—Has very much to do with the beauty of the horse, and correctly read, it no doubt indicates his disposition, but as we cannot see the quality, or convolutions, or proportions of the brain, we are quite as often deceived as with the human head. We have seen too that good or bad education has even more to do with fixing the disposition and usefulness of a horse than it has with that of a man. In the cart horse, we like rather a narrow forehead, a large jaw, and we don't object to the right sort of Roman nose. Every one who has seen much of cart horses, must have noticed how very often the ugliest head in the stable has belonged to the very best horse. In the horse for fast work, although there must be large elastic nostrils, we like a rather small muzzle, with the head expanding to a wide forehead between the eyes, narrowing in again as it approaches the ears. But in every description of horse we like the brain case—that is the space between the eyes and ears—to be decidedly rounding and not flat. This indicates a more docile and teachable disposition.

592.—The upper part of the jaw bones should be deep, with a wide space between them. The eye rather prominent, without displaying much white, and decidedly mild. The ears should be stout at the base and rather small at the points. Lively, yet patiently listening, with an inquiring appearance. We like to see one ear only turned to catch a sound from behind, as it indicates attention without suspicion, activity without alarm.

593.—The way the head sets on the neck is of much importance, as a point of beauty and utility. The front face should not bend down quite enough to be square with the top of the neck, but always quite enough to ensure that the reins will draw the bit on to the horse's lower jaw, and not merely draw his lips up to his grinders. Too sudden a bend is not desirable, and too much bend of any kind is supposed to interfere with the utmost breathing power in the racer. Too little bend spoils the mouth, and is most unsightly. For general purposes we would rather have two much than too little.

THE NECK

594.—Should be small where it joins the head, and more muscular near the shoulder ; should be much more muscular in the draft, than in the saddle horse. As in most other animals too thin a neck indicates want of constitution, but in a saddle horse it is a bad place to carry unnecessary weight. Take care that the wind pipe is large enough. A graceful curve of the neck adds much to the beauty of any horse.

THE SPRINGS.

595.—The horse's body is placed on his legs by a system of well arranged springs. Connected with each leg there are six main joints between the back and the hoof, all of which, except the knees, are more or less sloping or angular, sc as to form most effectual springs, breaking the jar with which his rapid motions would otherwise bring his great weight to the ground. All these joints move in a straight line from fore to aft, so that all the sustaining ligaments require to be strong, and widely placed in that direction. For this reason a strong capable leg is one that is deep from front to back, and the size and quality of the sustaining muscles and sinews, is of far more consequence in estimating, even his standing or merely supporting strength, than the size of his well protected bones.

THE LEVERS.

596.—Where weight, material, or lifting power has to be economized, a mechanic will always make his levers light at their fast moving end, and strong at their slow or powerful end. Each of the four supports of the horse's body is a lever, so arranged as to give speed to his feet at the expense of power, so that in judging of the horse's power or speed, we must estimate it, not by the small end of the lever at the shanks, but by the quantity and quality of the muscles, arranged on the loins, the haunches and the shoulders. The direction of each bone in these complicated supports, and the angle at which they lie to each other, is a matter of much consequence in estimating the capabilities and pleasantness of the horse, but to go fully into this subject would require a very long chapter on anatomy, which we wish to avoid, as we know that such chapters are not often read.

THE SHOULDER.

597.—The top bone in the structure of the front supports of the horse is the scapula, blade bone, shoulder blade, or upper shoulder bone. Unlike the topmost bones in the hinder supports, it does not touch the spine, though it reaches above the spinal column, and is not attached to it, except by the muscles that are attached to both. It is strongly embedded in large muscles, and reaches from the point of the shoulder to nearly the top of the wither. Its height, its length, and above all the angle at which it slopes back as it rises, are very important features in considering the value of a horse. The more it slopes back the more advantageously it will be connected, both with the assisting muscles of the back and loins, and with the resisting weight that it has to sustain and move through the lower shoulder bone, so that with sufficient slope, the fore legs will be lifted farther and more easily, the saddle will be carried farther back, and the fore legs will be set on further forward. Its back slope thus contributes in several different ways to the ease and safety of the rider, and to the moving power and endurance of the horse.

598.—For the mere plough horse, or for any horse for slow draft, where fast, graceful, and safe action is not demanded, an upright shoulder does very well, perhaps better than any other, as a horse so formed must have heavy shoulder muscles to compensate for the disadvantage at which he uses them. Such heavy muscular shoulders are well suited to the collar. A horse so formed, naturally leans forward, and his legs being far under his body and sloping back are in the right position for a long, leaning pull. As a matter of fact we find that horses so formed do stand constant, heavy, slow pulling remarkably well. But even in the dray horse, where much depends upon safe action, the shoulder must not be too upright. The leaning, clumsy, tumble down horse, however good a slave he may be for certain purposes, is never a horse to command a high price.

599.—This thin, flat, long blade bone, covered with powerful muscles, becomes suddenly round and thick at its base, where it is connected at a considerable angle with the round, short, strong, lower shoulder bone. This bone slopes down and back to the top of the arm, and to the end of the elbow.

600.—The elbow is a projection forward at the top of the fore leg, by a small bone, obliquely attached to the back of the bone of the arm. In the young horse, this small bone is joined on to the arm by grissle, but in the old horse the junction is hardened to bone. It is easy to understand that the more this small, oblique bone projects, forming a deep elbow, the more advantageously the large muscles attached to the shoulder bones will be able to act on the fore leg, and the more securely and effectually the leg can be thrown forward and recovered again. It will be evident too that the perfectly straight direction of the elbow, from front to back, is a point of great importance, as any deviation from the straight line of action there must greatly lessen the effective power, and twist the leg in its movements, causing the action to be unsightly and unsafe.

THE ARM.

601.—The lower shoulder bone is socketed into the long upright bone between the shoulder and the knee, which we call the arm. Where great speed is required, this arm bone should be long in proportion to the shank bone below it. No horse can be safe, strong, and enduring, unless the upper portion of this bone exhibits a full supply of well developed muscles. Whether you want power, speed, safety, or endurance, you cannot have it without large, well placed muscles where the fore leg joins the shoulder. The fore leg for speed can hardly be too light at the bottom, but it is never too heavy at the top. There are no muscles below the knee. Not an ounce of superfluous weight is permitted where it would have to be lifted at such a great mechanical disadvantage, so that the muscles on the arm have not only to lift and carry the leg on, but to work every joint below the knee by a beautiful system of polished, well oiled pullies, and smooth strong cords. No strength elsewhere can compensate for weakness in the muscles of the arm.

THE KNEE

602.—Of the horse is no common joint. It is, in fact, not one joint but three. As it is the only joint in the body in which one bone receives the weight of the body from another bone, in a perpendicular direction, it is furnished with the most extraordinary precautions, to prevent any injurious concussion. Between the lower end of the arm bone, and the upper ends of the shank bone, and its two small bony attachments, six small flat bones are interposed in two layers, each bone being deeply covered with elastic cartilage. These are connected together by very strong ligaments, so contrived as to hold between each layer of polished elastic cartilage a supply of oil, sufficient not only to lubricate, but also to soften in the most effectual manner, any otherwise injurious concussion.

603.—The knee should be somewhat large compared with the bones above and below it. A broad knee spreads the concussion over a large surface, offers a more secure attachment for muscles above, and more advantageously directs the sinews below it. When at rest the knee should retain its straight line, without a bend in any direction. Bending or knuckling forward is often the result of excessively fast work. It somewhat lessens the safety of the horse, and may be expected to grow worse with continued work. It is often seen in exceedingly good horses, and where the arm muscles are very strong, and the action good, it may be long before it produces any bad results. The least bend in the opposite direction will quite disqualify the horse for very fast work, as it puts an injurious strain and friction on the back sinews. No trainer would attempt to train a horse with such a defect.

THE SHANK.

604.—Below the knee, we have the parts of the horse's structure most liable to injury from fast work. We have seen that for mechanical reasons, nature could not be prodigal with material here, whilst the accumulated speed increases the danger, both from strain and concussion. No matter what you hear to the contrary, you may take it for granted that under all ordinary conditions, when your horse is lame, he is lame from some defect below the knee. He will not go lame because his bones are too small, but he may go lame because his back sinews are either too small, or not of sufficiently good quality, or are too closely tied in to the bone, so as to work at a disadvantage and with too much friction. You should therefore seek large sinews, standing well back from the bone, and feel that they are perfectly smooth and hard, with no gummy or soft deposit about them. Have nothing to do with them if they have been fired or blistered· They may be none the worse, and will certainly be none the better for the operation, but it will prove to you that they have failed, and will therefore probably fail again.

PASTERN.

605.—In the short space below the shank bone, and above the hoof, there are no less than three joints, all more or less out of the perpendicular, and consequently throwing more or less of the weight of the horse on to the strong, though small ligaments that surround them. If the short bones between these joints are too short, or too upright, the horse will stand slow, heavy work well, but will be rough, and may break down at fast work from too much concussion. If they are very oblique, and the bones long, the action will be springy and pleasant, but great strain will come on the ligaments that sustain the weight in that direction, and unless very good they will fail. It is obvious that a medium length and slope is best here, and that the shorter the bones, and the stronger the ligaments, the more they may slope, and the more they will require to slope, to avoid extreme concussion.

FOOT.

606.—Below all these springs nature has yet provided another important buffer, in the elastic frog and foot, which rarely fail to preserve all the rest, when not destroyed by bad shoeing. Of these we have treated fully in the Chapter on Shoeing.

607.—The direction in which the foot meets the ground, is a matter of great importance in the selection of a horse. If the foot is thrown well forward, and the heel comes first to the ground, he will not be likely to stumble or fall. If the toe comes first he must stumble, and is never safe. The sloping shoulder and the muscular arm will tell you what the horse will probably do in the way of safe action, but the forward, well placed foot tells you what he actually does do, and gives you an unanswerable proof that the muscles above cannot be far wrong.

608.—Cutting, brushing, or striking one leg with the foot of the other is a consequence of some defective formation. It is a troublesome and unsightly defect in a horse, more often seen, and more tolerated in the hind than in the fore legs. It can often be prevented by shoeing with tips only, but in a few cases it is necessary to protect with leather in some shape. In avoiding this defect, don't choose a horse that goes to the other extreme. Cutting horses are often very pleasant, straight goers, much more so than horses whose legs are set too wide apart. As they do not change the centre of gravity with every step, they are not obliged to roll from side to side to preserve their balance as a wide stepping man or horse must always do.

The straddling gait of the American trotters, to enable the hind legs to pass the fore ones, may be necessary for a racing trot, but is not necessary for any useful pace, and is a weakness and deformity.

HIND LEGS.

609.—Nearly all that we have said about the fore leg applies to the more powerful hind leg. In these the six joints are all springs, as the hind shank receives the weight from the thigh bone a good deal out of the perpendicular. The hock joint is quite as important as the knee, is even more complicated in its structure, and far more liable to be strained. It is therefore very important that the hock should be deep and projecting, and perfectly straight in the line of action, as this gives an important mechanical advantage, and keeps the tendons free of friction on the bones. Although the hind legs do not support so much weight as the fore ones, and any defect in them is not so dangerous to the rider, they are the propellers that send the whole body along, and in a horse for heavy draft, or racing of any kind, they are even more important than the sustaining fore legs.

HIND QUARTERS.

610.—In judging of the power of the hind quarters look for enormous strength at the top. Begin at the loins and let everything gradually taper to lightness at the other end of the lever. Look for consistency in this descent. The weakest link of a chain is the measure of its strength. The weight of a hundred strong links will only help to break it, if they are connected by one weak one. There is no use in a horse being weighted with powerful muscles in twenty places, if there is some weak point that will give way when the strong muscles are put in force. Never forget which end of the lever it is that you want strong and which you want light. Never expect a horse to be either fast or strong if his loins are weak, nor expect him to be weak because his shank bones are light.

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CHAPTER XXI.

INDICATIONS OF AGE.

611.—The age of a horse can be estimated with much accuracy from the appearance of his teeth. From two months to thirty years old the teeth undergo gradual changes that enable us to judge of his age. Few persons are willing to give as much accurate attention to this subject, as would be required to read the age of a horse through a range of 30 years. We will therefore only explain a few of the most obvious and important changes that enable us to judge of his age during the most valuable and important period of his life.

612.—The mature horse has three kinds of teeth. Twelve front teeth called nippers, adapted to cut his grass. Four canine teeth, called tusks, and twenty-four large, strong teeth, called grinders. We shall not farther refer to the grinders as they are not sufficiently visible to be convenient for our present object. To prevent confusion we will take only the most easily observed, or lower jaw, for our guide during the first seven years.

613.—At about a week old two sharp, cutting nippers appear in the centre of the front of that jaw. At about six weeks old there are four, and at about eight months old there are six. When these teeth first appear they have sharp, raised front edges, with quite a hole in the centre. These edges soon wear off leaving the top of the tooth smooth and level.

614.—At about two and a half years old, the two centre nippers loose their hold of the jaw, shrink, and are forced out by two new teeth, larger, more fluted, and not so white as the colt's first teeth. At about three and a half years old there will be four of these yellow, fluted, strong teeth, and at four and a half there will be six.

615.—Soon after four years old a tusk, or round pointed tooth, will be coming through the gums, at some distinct distance behind the nippers. These do not often appear in the mare.

616.—At five years old the six nippers will be complete, and nearly level. The centre ones nearly smooth on the top, but the outside ones with depressed, dark centres, and high, sharp, outside edges.

617.—These sharp edges on the outside, with holes in the centre of the teeth, will wear out fast, so that at six years old they will be gone from the two centre nippers, and nearly gone from the next pair.

618.—At seven years old all the nippers in the lower jaw will be smooth and level on the top, or perhaps a slight depression in the outside pair only.

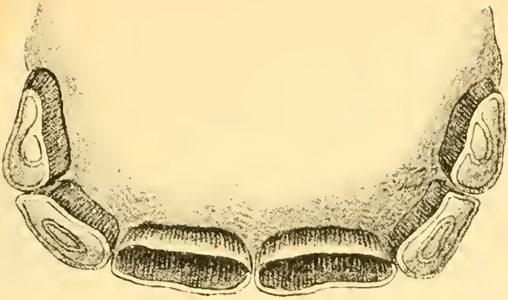
619.—We will now leave the lower jaw, and consult the top one, because here the teeth do not wear so fast as in the moving lower jaw, so that at seven years old there are often marks and depressions left in four of the upper nippers ; and at eight years old the two outside ones may still be expected to carry a small hole and distinct mark.

620.—After this we must be guided by a slower and less definite change, that is always going on with the horse's teeth. When the nippers first appear they are wide across the mouth, and narrow from back to front. But they continually increase in thickness in the latter direction, so as to entirely alter their shape, and eventually to reverse the position of the long and short sides.

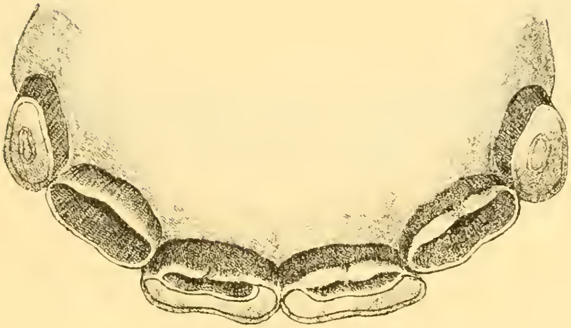
At about fourteen years old they will be as thick in one direction as in the other, and at twice that age they will be nearly double the length, from front to back that they are across the mouth.

621.—There is a constant alteration going on with the tusks, although it is not so regular and definite as the early changes in the nippers.

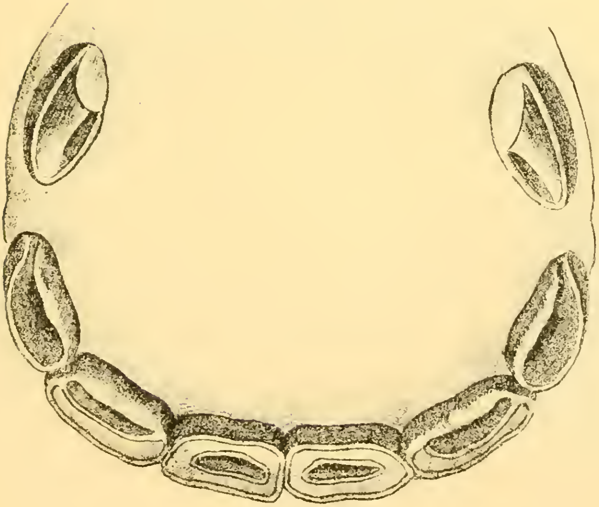
When the horse is five years old, the tusk is sharp at the point, round on the outside, and quite concave on the inside,



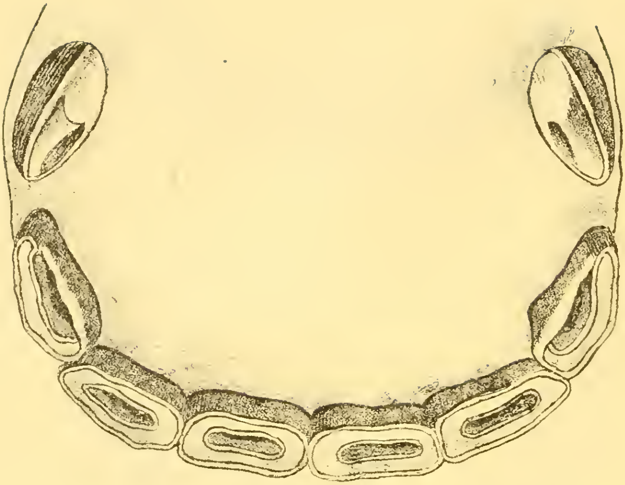
3 YEARS OLD.



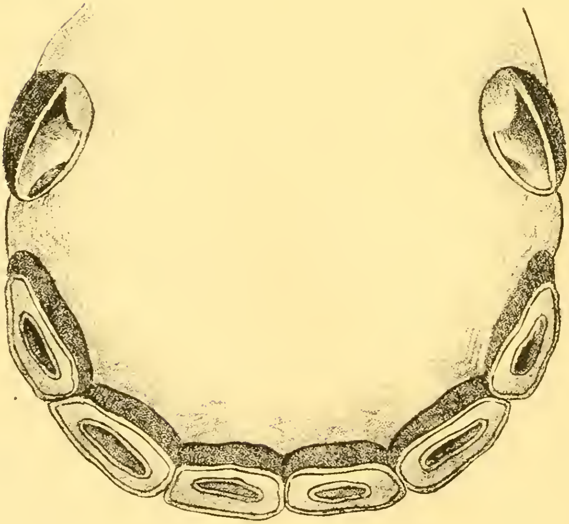
4 YEARS OLD.



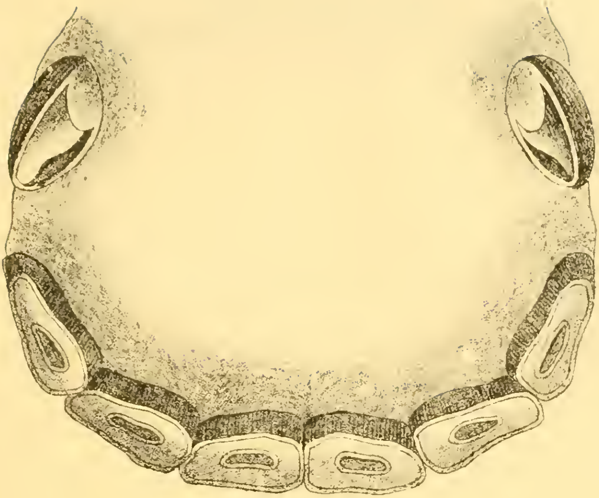
5 YEARS OLD.



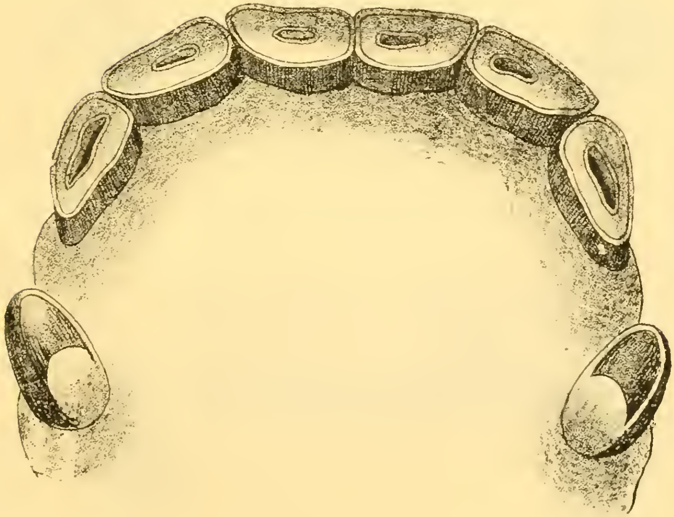
6 YEARS OLD.



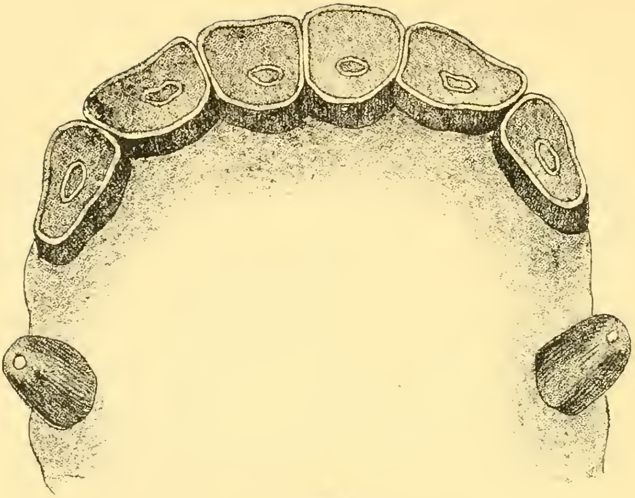
7 YEARS OLD.



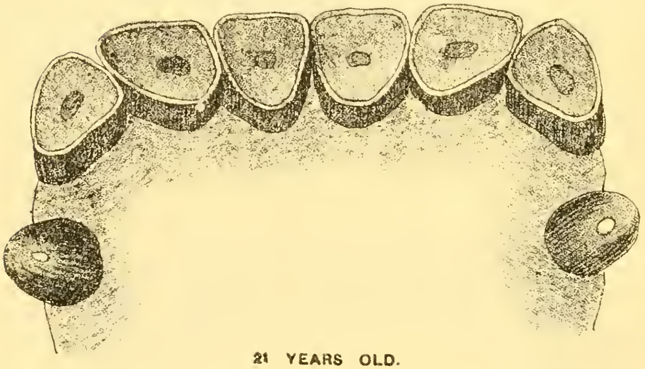
8 YEARS OLD.



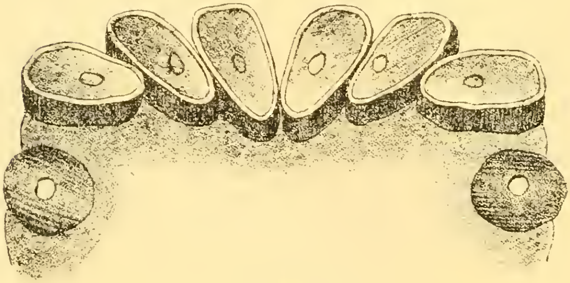
10 YEARS OLD.



15 YEARS OLD.



21 YEARS OLD.



29 YEARS OLD.

with distinct edges that may be felt with the finger on the inside. This gradually grows flat, and then rounding, so that at ten years old the inside is nearly as rounding as the outside. The point too is always growing less sharp, so that at ten years it is blunt, at fifteen years it is quite rounded off, and at twenty it is flat on the top.

622.—In some horses the age between twelve and twenty can be judged with much accuracy, by a line or very narrow mark or groove that makes its appearance on the centre of the corner top nippers, at about eleven years of age. By looking closely at the front of the teeth you will see a straight narrow line growing down from the gums. This will grow a little longer every year, until at about twenty years of age, it will be all the way down the tooth. When half way down you would therefore reckon the horse to be fifteen or sixteen years old, and so on, as the line creeps down from top to bottom.

This line is not found in all horses and is not a very reliable criterion though often useful. Indeed, each of the indications of age is liable to fail in exceptional cases, and hence the necessity of knowing and observing more than one, and correcting them by each other.

623.—There are some kinds of horses in which the bones and teeth are harder than in others, and the marks do not wear out so fast, but the greatest deviation in wearing is caused by the peculiar position or direction that the teeth sometimes take. In some horses the nippers project so much, that they do not wear down in the usual form. In such cases the marks will not wear out for several years later than they should do, but the teeth will be unnaturally long, and such long projecting teeth never belong to a young horse. The age of such horses may be very roughly estimated by the length of the teeth. At five years old a natural nipper will stand about three quarters of an inch above the gums, and as it grows about a twelfth of an inch every year, if it does not wear down, such a horse at seventeen years old would have projecting teeth an inch and three quarters above the gums.

CHAPTER XXII.

PURCHASING A HORSE.

624.—Franklin has told us that "pride costs us more than hunger, thirst, and cold;" and pride in horse lore, though a very common is a very expensive article. There are many young men who think that they can go into a horse fair and cope with all the tricksters and sharpers whose special business it is to take advantage of such foolish conceit, and to make a horse appear exactly what he is not. Such greenhorns not only lose their own money but they foster cruel men and cruel practices, which would be less common if less successful. Men whose special business it is to cope with the lowest horse dealers, who know all their tricks, both ancient and modern, and whose eyes are alive to every defect that the horse is subject to, are liable to be taken in, and calculate on a certain per centage for that contingency, but the inexperienced man has no chance whatever of escaping deception, and only shows his want of judgment in expecting to do so.

625.—There are several reasonable ways of going to work to get a horse. Perhaps the most simple and convenient way generally is to go to a dealer, of character and responsibility, and tell him exactly what you want. Don't ask him for a perfect horse. You won't get that. Tell him exactly what virtues you must have, and what defects you can put up with, and the lower the price you expect to give, the more defects you must be prepared for. You perhaps want a horse at a low price that will be sound, useful, safe, and quiet, and can be left standing alone. Then you must be prepared to dispense with good looks, great speed, and showy action, and most likely, with that freeness that would require no whip, as these are expensive things, and are not often combined with the qualities you must have. If on the other hand you want a cheap, free, fast horse, for regular hard work in good hands, and one that will not fall down, you can get that, but then you must not expect, in the same animal, a horse that will stand like a post as long as you like after a week's rest, that a child may drive alone, and that will bear putting in with half the harness hitched or with the blinkers tumbling off occasionally.

Half the disappointments in life result from expecting too much, from seeking incompatible combinations, and from not clearly understanding that defects, either bearable or unbearable, will be found in every animal.

626.—Agree with your dealer for a week's trial, and before you finally decide to keep a horse that appears to suit you take him to a skilful veterinary surgeon, and ascertain if he thinks him sound.

627.—We have known gentlemen who always purchased their horses from the same dealer, on a month's trial, with the most satisfactory results. Under such an arrangement no dealer would be likely to trouble them with horses that he suspected would not suit them. But on the other hand, a cautious dealer would not trust his horses, for a month, except in hands that he knew would keep and use them sensibly, and would not return them on any frivolous pretence. A person who has not established such a reputation with a dealer, would be better to propose to hire a horse for a month, and to keep him at the end of that period if liked ; but even then he would hardly be trusted with anything but a well worn animal. The dealer should always be readily met with any reasonable precautions he may desire to secure the good treatment of his horse whilst in your hands.

628.—Where practicable it is wise to go not to a man who deals only, but to a man who breaks, and still better who breeds the horses he sells. But this would generally imply getting a very young horse, and there are very many purposes for which a very young inexperienced horse is not desirable. Preference should be given to a horse that is being sold for the first time.

A really good horse, like a really good servant, seldom passes through many hands. Employers who are fortunate enough to get them, keep them if they can. Horses with some latent defect, vice, or weakness, are frequently in the market, and it is wise to avoid horses that have passed through many hands. Such horses are often sold for defects that you may not discover in a week, or even a month's trial. For instance some horses do well in the summer and not in the winter. Some have weak digestive organs, that leave them liable to dangerous fits of colic or inflammation. A horse that is all right in low condition with regular hard work, often develops some serious vice after rest and indulgence. On the other hand he may stand light work very well, and break down with hard work. He may be sold because he is known to have come in contact with a glandered horse, or to inherit blindness, ringbone, or other disease, not suspected from his outward appearance. Or he may have recovered from some disease of the brain to which he will again be liable.

629.—Another way to obtain a horse is to buy one that you have had opportunities to know all about, and that you know to be sold for some reasons not connected with unsoundness or vice. Beware of touters here, and do not be influenced by conversations you overhear at an auction, or by the zealous eulogies of recently introduced friends.

630.—A man who is himself a good horseman, and has regular work that can be done by a young horse, may buy or get a dealer to buy for him, an unbroken colt, of the stamp he wants, and place it in the hands of a skilful good tempered horse breaker, who should be required to keep it until thoroughly qualified for whatever it has to do.

In this way a really good, unworn, and unspoiled horse, with all his work in him, is often got more cheaply than in any other way, but it must always be remembered that a newly broken horse will require to be handled sensibly for at least the first year.

TRYING.

631.—When you get a horse in your own hands for trial give him if time allows a night's rest, and let him start with his trial fresh and with cold shoulders. Drive him about first with long reins, that will keep you at sufficient distance from his heels, before you hitch him to any vehicle. Get a rein under his tail and draw on it. Get some one to put a smooth pole between his legs and to rest it gently against his hocks and thighs. This will soon prove what you have to expect from his heels, without any risk to yourself or the horse. Take him close to a railway train, or any other frightful object you want him to pass. Beat a drum, or fire a gun behind him, and see how far his education in such directions has been carried.

632.—Put him in a vehicle and let one or both wheels be held before you ask him to start, and notice if he puts his head up or down to do so. Use no whip for awhile, he will then soon show you if he is naturally lazy, and has only been kept going by a dread of severe applications of the whip, chain, or some other torture, as is often the case when you get a lazy horse from a dealer. Like the lady's coachman in Bath they whip them before hand, but often in a far more cruel manner. Jog him about slowly, as that is the pace at which he is most likely to stumble if there is any defect in his action. Drive him towards his own home, if he has one near, and you know it, as you will then see if he has any self-will in turning away from it.

633.—If you find the disposition will do, you must next try the powers. Get to ascertain the capacity of the lungs. Unless these are sound and capacious the best legs will not long carry him fast. On a good level road, or on an uphill slope, and without much load, either on him, or behind him, get him to trot a mile in five minutes. Then get down and watch his breathing. See if the nostrils easily open quite wide enough for their work. Listen at the windpipe and take care that there is no sign of wheezing there. Look at the flanks, and see if they are working hard, or if they quiet down as they should do, directly after the horse stops. Especially notice if their working is regular, and with no double spasmodic effort to expel the wind. Any sign of such uncomfortable action should be a fatal objection to any horse, and your trial need proceed no farther.

634.—If all has gone well so far, you should now put his wind power to a severe test, if he is in good hard working condition, so as to bear it without injury. Trot him two more miles, and finish with a smart gallop up hill. Then get down and watch as before, and you will estimate the wind power of the horse by the quietness of his flanks. A fat, soft fed horse, will not bear so much driving, however sound he may be, and must not be expected to breathe as quietly after exertion as a horse in working condition, but his breathing must be regular.

635.—If you have taken soft road to try his wind on, take him next to the hardest road that you can find, and trot him at a steady pace, watching his head to see if he drops it the least bit lower for one leg than the other. If he does there is something wrong. Notice all his actions carefully when quiet and quite unexcited in the stable. If he frequently keeps the same fore leg more forward than the other, you may look on that leg with suspicion, as it is often an indication of something coming wrong not yet shown in action.

636.—Verbal warranties or promises to warrant are utterly worthless, and the most legally worded written warranties, even from the most respectable men, are best avoided. The interpretation that may be put on them in a court of law is very uncertain and the amount of evidence that may be brought against you still more so. The amount of successful swearing that some witnesses can accomplish in such cases is truly astonishing. No sensible man with his eyes open will go into any transaction that may take him into a court of law, especially in a horse case.

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CHAPTER XXIII.

BREEDING.

637.—Breeding horses is a very interesting but not often a very profitable occupation. Britons are fond of it, and will practise it whether it pays or not. In the cities of Australia, thousands of well bred light horses have been sold for less than it cost to drive them there, because neither their owners nor their owner's servants, liked to kill them for their hides and tallow, although it would have been far more merciful to have done so.

The production of such a fine specimen of animal power, usefulness, and beauty, has a fascination about it that influences a great variety of characters. The patriot sees in it a way to benefit his country; the lover of rural life to multiply and perpetuate his charming pets; the ambitious to acquire fame; the physiologist to establish his theories; the acquisitive to secure great prices; the gambler to produce a Flying Childers, an Eclipse, or a Blair Athol. There is an unspeakable charm in breeding and educating your own horse—the horse that understands every move of your hand and eye—that never served any one else—in which you never suspect any latent vice or weakness—that is the son of the old mare that served you so long and so well, or perhaps saved your life by her extraordinary endurance, speed, or sagacity. Who could be so mercenary as to even ask if such a horse has cost more than he would fetch at Tattersall's?

638.—Breeding such an animal is a subject that has attracted much thought, so that a great deal has been written, and well written about it. We shall not go at much length into it, as in England it is a business very much confined to a few persons, and a few localities, and the small number of undoubted rules that are really known on the subject need not take long to explain.

PURE BLOOD.

639.—In breeding any valuable and costly animal the first thing to bear in mind is that no animal transmits its own qualities with anything like certainty to its offspring unless it has inherited those qualities from both parents, and both of these parents have also inherited them through many generations, without the intervention of any ancestor of a very different type. The first cross between two pure bred animals of a different type, can generally be depended on to produce an animal of a certain form and character, sharing the qualities of both parents; but such cross bred animals have no power to transmit their mixed qualities with any certainty to their progeny, or to carry on any characteristics they may themselves possess. Even when crossed again with one of the pure bred animals from which it has derived its existence, it may or may not produce something more consistently like that parent. Even when this has been repeated frequently enough to leave by calculation a very small fraction of one of the original crosses in the blood that small portion often exerts an influence upon some far removed descendants out of all proportion to anything that could be expected from, let us say, a thirty-second, or sixty-fourth part of that blood.

640.—Thus we cannot sit down and calculate by any rule of arithmetic, how little impure blood either parent may possess. All that we certainly know is, that if any recent impure blood is there, it may come out in any descendant, and be exhibited to an extent altogether beyond any such calculations. Nor will the slightly cross bred parent have the desired power to transmit with overpowering force his own qualities to his offspring as an animal long bred from one pure race will often do. Thus to breed any pure race with certainty, you must have good pure bred parents on both sides, and to breed even a cross bred animal with any probability of success one parent must be known to possess pure predominating blood, that is sure to assert itself in the progeny.

REVERSION.

641.—Even with those animals that have for some centuries been bred without crossing, there will be some tendency to reversion, so that none of them will produce *fac similes* of themselves with the same certainty as the mouse or the lion, or any animal whose original characteristics have not been altered by selection in breeding.

642.—By long-continued, careful selection, and artificial feeding and care, the cart horse has been produced as large as possible, and the race horse as fleet as possible, and in both we have selected the temper we preferred, and the form we considered most useful and handsome. The natural consequence is that we must carefully continue to breed from animals selected with the same object, or the cart horse will degenerate in size and form, and the racer in fleetness. Both would gradually return to what the original stock was, from which they have been elevated by selection.

TRANSMISSION.

643.—Animals that are supposed to have been equally well bred differ extremely in the power of impressing their own likeness on their offspring, so that some horses, and some mares, will breed colts exactly like themselves, and others seem incapable of transmitting any of their own qualities. This can only be proved by results, and the real value of any animal as a parent can only be certainly ascertained by the character of the progeny actually produced.

644.—No animal should be bred from that does not possess the form, size, and qualities you want in the offspring. No pedigree, real or fictitious, can compensate for inferiority in the animal itself, but even when you have selected the most perfect animal, and the most satisfactory pedigree, it may after all prove to have little power to transmit its own qualities to its progeny. Some few mares are valued as brood mares, because they always breed foals that are the exact image of the father, and do not seem to influence them at all themselves, but a horse that conveys none of its own qualities to his offspring can never be a very satisfactory parent.

645.—There are some few horses that transmit their good qualities with great certainty to their offspring, and also confer on many of their decendants, the same overwhelming power of transmission. It is easy to understand that such a power is more likely to be possessed by a horse that has descended, for many generations, through ancestors of exactly the same character as himself, but it is also found to be most potent in animals that have been long bred through exactly the same strain of blood. But with every advantage of breeding some horses do not possess this power, and you can only be sure that they do, by actually seeing it in their progeny.

646.—Thus we see that there can be nothing certain about the production of a first-class animal unless we know that both parents are good, their ancestors good, and their reared progeny good. When we know all this there will not be much risk about it.

647.—Breeding in and in, or from animals closely related to each other, is full of danger, and is bad as a rule. It has a tendency to lessen size, hardiness and vigour, and to fix and exaggerate defects and diseases. In the cart horse, where you must have size, hardiness, and a thrifty constitution, and only require a moderate degree of fibrous and nervous capacity, it need never be adopted, as all you want can be better secured without it. It should be avoided for common purposes and by common breeders, but in skilful hands, who know all its dangers and how to avoid them, it answers a purpose, in breeding pedigree animals, and endowing them with a power of transmission that can be achieved in no other way. It is the only way to hand down the undiluted influence of some extraordinary animal, to perpetuate and give a fixed character to rare and desirable peculiarities and qualities, to produce an animal that will not be half one thing and half another, as most animals are, but will be all one thing, all one blood, one strain: one strong predominating tendency of form, quality, or character.

648.—It is evident that in the ordinary course of breeding the character of any extraordinary progenitor must soon be lost. His son is only half his blood, and if the other half is entirely foreign, he has probably lost all power of transmission already. His grandson has only a quarter, his great grandson only one eighth, the next remove one sixteenth, the next one thirty second, and so on. The extraordinary blood is lost, and may never be picked up again.

649.—On the other hand, by breeding in and in we can preserve the rare blood, and the rare qualities, and hand them down, little impaired, to millions of descendants. Thus the carefully inbred pedigree shorthorns, have stocked England and her Colonies, with the descendants of that bull that would get fat, though owned by a poor man, and tethered in a public lane, as well as with the result of that one cross with the short legged Scotch cow, which a skilful breeder brought to a fixed type, by judicious in breeding.

The blood of Eclipse, himself closely inbred from Hautboy, comes down to us through 120 years, almost as pure as it ran in his own veins.

Messenger's descendants, through his own daughters, are still the trotting horses of the world, and Justin Morgan's descendant's, through the closest relations, are the strain that have made that wonderful and ill-used piece of horseflesh so long useful to the Western Continent.

650.—To get very fixed character, with undoubted power to transmit its qualities, you must often keep working on the same strain of blood, but under general circumstances you need not keep to what are called very close relations. The more closely you keep to one blood, the more vigilant you must be to avoid the defects to which that strain has the strongest tendency, and to shun the slightest symptom of disease.

651.—The English Thoroughbred is a good specimen of the best kind of inbreeding. Close relations are generally avoided, but the breeder never goes outside of the blood that has long proved the best, or beyond the few families that have bred together for nearly two centuries. The race being constantly weeded by dropping those that fail in actual performance, and both dams and sires, chosen from those that best endure the test of the severest strain on their health, vigour, and physical power.

PEDIGREES.

652.—There is no more common fraud than the manufacture of fictitious pedigrees. Those in the English stud book have many safeguards, and are, no doubt, generally correct, but not necessarily so. It may suit a dishonest owner to take a good deal of trouble to exchange a foal so as to have the good pedigree attached to an inferior animal that he can sell, and to have the high qualities of a probable winner unsuspected. It is even possible for an owner himself to be mistaken, as will be seen from the following fact.

653.—One morning we found that two of our mares had foaled in the night in a large paddock. One of them was a heavy cart mare, and the other a light pony. On going up to them we found the cart mare suckling the pony's foal, and the pony standing guard over an enormous cart foal. We tried to put matters right, but our interference was indignantly resented. Both mares insisted upon the accuracy of their own selection, and that so tenaciously, that when we shut them up separately with their own foals, the pony would never take to hers, and it had to be brought up by hand. Now, if these two mares had been more alike, the mistake would never have been discovered and we should have been as positive as any one else as to the accuracy of our pedigrees.

COUNTERACTIONS.

654.—Any defect in one parent should be counteracted by great perfection in the other. If both parents have the same defect it is not only certain to appear in their offspring, but will, most likely, be much exaggerated. In nine cases out of ten it would be better not to breed at all than to accept any serious defect in either parent. Absolutely, perfect form cannot of course be got, but get as near to it as possible, and at any rate don't tolerate the same defect in both parents, especially if they are related. Perfect health and perfect temper should be insisted on.

655.—For the more complete nourishment of the foal, we should prefer the mare a little more lymphatic, and the horse a little more nervous than we wished the foal to be, but we would never venture on any great extremes either way. The more the parents are alike the less risk you will run as to what the foal will be. This similarity in the parents is especially important in breeding pure bred stock where the foal will be used for breeding purposes.

AGE.

656.—So long as robust health and vigour are secured, age is not a matter of much consequence. We should prefer the prime of life, between four and sixteen, and if one parent was getting rather old we would take care that the other was quite young enough. But there is no denying the great fact that some of the best horses in the world have come from two-year-old sires, and others from sires over twenty-five. We would discard no thrifty, healthy animals from breeding, that had proved capable of producing good stock, and should prefer such proved parents to any unproved ones. We should value a horse or mare all the more, for breeding, that retained their own health and vigour to an unusual age, but we should not expect good results from a parent that was infirm from any cause.

TEMPER.

657.—Too much allowance is usually made for the temper of an entire horse. In good hands he should be as gentle and tractable as a gelding, and if he is not he is not fit to breed from. In breeding gambling machines for the turf, temper is unfortunately regarded as a thing of very secondary consequence, but for ordinary purposes it is one of the very first requisites. The English Thoroughbred is naturally deficient in a quality that has not been sought for by his breeders, just as he would be deficient in safe action, if it were not for the influence brought to bear on that qualification by the hunting field. It therefore requires that the breeder who uses the Throughbred horse to produce first-class serviceable animals, should be especially exacting on these two neglected points, which make such an enormous difference to the pleasantness and value of any horse but a racer.

658.—The Thoroughbred trotting horses of America are better tempers, or they could not be kept so easily at a trot, especially as they are not broken in so young as the English racer, but even with them, low, ugly, unsafe action is preferred, if it helps a horse to do a mile in a second less time than he would do it with good safe action.

Fortunately in neither case can the desired speed be got without a well directed shoulder blade, so that the mischief is not carried so far as it would otherwise be, and horses with very good, safe action can be selected either from English or American racers—from the " runners" or the trotters.

659.—The breeder for general purposes should always be on the look out to correct the defects that are not corrected in racing stock, and should especially remember that a sweet temper is one of the greatest charms that a horse can possess, whatever the present American fashions may say to the contrary it is of infinitely more importance than whether a horse will require two and a half or three and a half minutes to trot a mile.

FEEDING.

660.—Neither the horse nor the mare, kept for breeding purposes, must be unnaturally fed. An undue development of nervous irritability, by highly condensed food, will be fatal to all good results : fatal not only for the time being, but extending indefinitely into the future, as all racing records prove. The powerful nerves must not be kept in a state of excitement, but soothed by cooling, succulent, natural food. If grass fails, give turnips, and use no more corn than will meet the demands of whatever work may be done. You had better underfeed than overfeed the mare, though either would be bad. A horse fattened like a pig to hide all his defects is fit for nothing. He should get natural food and plenty of exercise.

GESTATION.

661.—The period of gestation is said to vary from forty to fifty-two weeks, but we have never known such extreme variations. The usual period is about forty-seven weeks. Race horses, for well known reasons, should be foaled in January, other horses about April.

662.—The brood mare should not be fat, nor unnaturally fed in any way. She is much better to work in careful hands up to the day of foaling. The work may even be hard, provided that it is regular, and not fitful or violent. The usual recommendation, that she should be shut up to rest for the last six weeks is both dangerous and mischievous.

A mare that is in good health and heart, but with no fat about her, and that has worked up to the hour of foaling, will foal easily, and will suckle her foal far better than a mare that has been left idle and fat.

PARTURITION.

663.—More than ninety-nine mares out of a hundred get through this trial without any help or any mishap. Fat is a great cause of suffering and danger to any female at this time, but the mare is far less liable to anything wrong than either the cow or the ewe, but in the few cases in which irregularities do occur, she is more difficult to assist, and suffers more, as her labour throes are so violent.

664.—Like other domestic animals the foal should come head first, with the fore legs close under it. Never interfere unless long delay, or an evident mis-presentation renders it necessary. If the head is bent round, or if either of the forelegs is out of place, push the fetus back when the labour pains are not on, and quietly introduce the oiled hand to search for it, and put it right. Bring them to their right position, but leave the mare to expel the foal herself if possible. If any assistance is found necessary to extract the foal after it has been put in position, it must be given whilst the labour pains are on, and at no other time.

TREATMENT OF FOAL.

665.—Handle the foal a good deal during the first day, whilst it is not likely to run away from you, and get both it and its mother to understand that you can do so without hurting it. If frequently handled during the first few days it will lose all fear of man. It will also save future trouble if at a week old you put a small, soft, leather halter on it, and gently show it that you can hold it in spite of all its efforts. If this is well done, it will always give you credit for the same relative strength, and believe that you can hold it when you have no power to do so. It will also save all farther trouble about tying up. An hour or two spent in this way will save a great deal of time afterwards, and produce a more gentle reliable animal than any after work will do.

666.—The mare will generally receive the horse some time between the seventh and twelfth day after foaling, and it is important to attend to that, as she does not remain in season long when suckling, and is more safe to conceive at that period than at any other time.

667.—Whilst suckling the mare should do no hard work and if she is taken off her pasture at all, she should be well fed at very short intervals, and the foal fed with her, and allowed to suck very often. The mare has no large retentive udder like the cow, no capacious stomach to hold a day's supply of food, no power at any time to go long without food safely, so that when she has to eat and digest for two, all her wants should be very liberally and very frequently supplied. It is in every way better to leave her for the first few months in a good pasture to attend to her own requirements. The foal can be weaned at four months old, but it will tell against its growth and size, so that unless it is a pony that you want to keep small, it is better not weaned until six months old.

668.—Before the foal is weaned it should be brought in with the mare occasionally and fed. It will soon learn to eat carrots, or a little oats and bran mixed with chaff. Get some sliced or pulped Swede turnips mixed with what he will eat, until he has learned to eat them well in any shape. Give it a full feed of turnips and chaff, once or twice a day, during the winter, or until the grass is good, and if you want to grow a big horse, give it little or no corn until it is three years old. We know that we have all the great authorities against us here too, but we only say try it.

Feed one colt on turnips and another on corn, and see which grows the biggest. Like many other persons we have made many a horse small by feeding him on corn that we could have made big by feeding him on turnips and grass, but we know better now.

669.—Of course we are not now speaking in this matter of the colt that must be prepared to race at two years old. Turnips would not do for that, nor could we hope to give any information to the skilled men engaged in that work. We have had no personal experience in actual racing, and can speak with no authority about it, but we do know that even the Thoroughbred horse grows finer at four years old when he gets turnips. We can quite understand that the foal that is to race at two years old must have his digestive organs contracted in infancy, but we have found that contracted digestive organs, and a contracted frame, have a strong tendency to go together, so that we would not give very concentrated food to a colt that we wanted to grow large. In growing large prize cart horses, we have been very successful, and we owe our success, not to corn, but to turnips and good grass.

670.—Young horses should have some shelter, and they are much better to have it without tying up. A shed in their paddock, entirely open to the South, with a deep manger all along its North side, in which they can get their hay, straw, or roots, makes the best provision for them. A large straw or hay stack will keep a good deal of driving rain off them, or even a high fence, round their paddock, is a great deal better than nothing. In this matter everything will depend upon the severity of the climate, and Thoroughbreds will want more care than cart colts, but liberty and fresh air, and even some poor winter grass, mixed with their dry food, is of far more consequence than most persons suppose.

CHAPTER XXIV.

DISEASES.

671.—The horse is a hardy animal. In a state of nature he is little subject to disease, and even bears unnatural food, unnatural confinement, cruel overdriving, poisonous air, and poisonous drugs, to an extent that no other equally sensitive animal would do. The patient ox would bear more inaction and confinement, and the omniverous pig would bear more extremes in his food, but no other animal in the world would bear the same amount of overdriving that is so commonly and so cruelly inflicted upon the horse. Each of the many abuses to which he is subjected in domestication, has produced some corresponding disorder, until the catalogue of his diseases is almost as long and painful as that of the human family, and the average life of the domesticated horse is less than one half of that of the wild one.

672.—If half the attention devoted to remedies were directed to easy and certain prevention it would be an inestimable boon to the equine race.

Veterinary students have been even slower than our own qualified medical practitioners in giving up Brown's brandy, bleeding, blisters, and balls. Still they have made some progress, so that whilst Youatt told us that the cruelly exhausted horse in the hunting field might be saved if the rider had skill enough to bleed him on the spot, a great orthodox modern authority tells us that "to bleed him is to kill him."

Mr. George H. Dadd, M.D., and V.S., and the author of by far the best veterinary works we have seen, says, "The more a man knows of physiology the less faith he has in medicine," and "during nine years practice, in the city of Boston, we have never in a single case of this, or any other form of disease, had recourse to the practice of blood-letting." Another American author, Mr. Russell Manning, M.D., V.S., tells us, in 1881, "The day is past for bleeding and purging for every ill that even horseflesh is heir to."

Dr. Dixon says, "Nature is ever busy by the silent operation of her forces in curing disease. Her medicines are air, warmth, food, water, and sleep. Their use is directed by instinct, and that man is most worthy the name of physician who most reveres her unerring laws."

673.—Until the martyred Servetus commenced and the honoured Harvey completed the discovery of the circulation of the blood, nothing was really known about the wonderful animal machine, and no one could have been in a position to usefully aid it. Since then, the greatest minds have profoundly searched into the secrets of the noblest work of God, and have learned a very little about how to assist some of the operations of nature. In so doing they have come to humbly sit at the feet of the Creator of such a marvellous structure, to put no limit on his power, and to touch his work reverently where they touch it at all.

We know how deficient a horse book will appear to many readers that does not present a long catalogue of those "certain cures" which form such a conspicuous and attractive part of most books on the horse. But we cannot lend ourselves to the perpetuation of error that we long to see corrected both for man and horse, and which we believe to be so mischievous, so costly, and so cruel.

674.—Natural and frequent feeding and watering, liberty to move a frame so evidently destined for almost constant action, moderation in exacting demands that are made on his great physical powers, some slight attention to his bodily comfort, and to the skin we can always see and get at, with unlimited access to that rightly mixed air which the Creator has so freely supplied to all his creatures, are the best agents that have yet been discovered either for the preservation or the restoration of health.

675.—Heat and moisture are the great agents by which nature works in building up or pulling down the animal frame.

Their rapid, equal, and sufficient diffusion carries health and life ; any deficiency, excess, or stagnation, is disease or death. The machine for their constant and equal distribution, although so perfect, is so complicated and extremely delicate that no human hand may rashly touch it. So long as all goes well we may cautiously supply food or fuel for it to work on, reverently and intelligently inquiring what materials the machine was made to deal with.

When disease shows us that we have committed some fault, or that the delicate circulation has been in any degree impaired, the only thing we can do with any hope of success, is to attempt to augment or withdraw, either heat or moisture, and to supply anything likely to facilitate their equal distribution. We may hope to do much good by offering life-giving heat or moisture to the accessible, visible, aud manageable skin, which nature has constituted one of the most copious and powerful, as well as the most accessible and accommodating safety-valves in the structure of her most important animal machines.

676.—Disease is sometimes the result of defective or improper supply. It is more frequently the consequence of defective deportation, or carrying away. If the waste of the body is going on all right, the building up will seldom go wrong. Well drained land will bear either a deficiency or an excess of surface water, better than undrained land will do. and the far more minute, and more delicate drains of the animal structure, are more easily obstructed, and are far more indispensable to animal welfare. The bodily system is often starved, not because no nourishment is supplied, but because the tubes cannot pass it on for want of a clear outlet for the waste products of animal combustion.

677.—No horse can be healthy or well nourished unless the lungs, the bowels, the kidneys, and the skin are all freely carrying out of the system, by the aid of the great common carrier, water. Each of these four great drains should take something peculiar to itself, but also a great deal common to all ; so that each of them can be made to take more or less than its share, and thus to relieve or to overtax the rest of the drains in the system.

Thus if you drink a pint of cold water and sit still afterwards in a low temperature, you will find that most of it goes off by the kidneys ; if you go into the high temperature of a Turkish bath, it will go off by the skin ; if you take active exercise immediately after drinking, the other two drains will take their full share, so that even the bowels may be sensibly affected by it.

DIGESTIVE ORGANS.

678.—The bowels necessarily carry off the innutritious woody fibre, and any other materials that are not extracted from the prepared food by the lacteals, and taken into the blood. They should also carry out the bile, and some of the coarser excretions from the blood, from which they also receive some degree of lubrication and healthy, natural excitement. The human bowels will not work pleasantly, and the horse's bowels will not work at all unless they have a large proportion of woody fibre, or coarse, bulky, inadhesive material to pass on and work upon. The horse is quickly and most painfully killed by unmixed wheat, and if he could or would eat it, would be more certainly killed by fine flour, although many men, and many books recommend it, even for locked jaw and inflamed bowels. The bowels of both horses and men are most frequently and most severely taxed by being called on to pass densely nutritious food, without a sufficient proportion of the rough, bulky, light, woody fibre, found in all the natural food of the horse.

679.—The bowels of the horse can always be kept working pleasantly and healthfully, by supplying them with suitable material to work on, and avoiding those sudden and extreme changes which give the delicate and sensitive tubes no time to adapt themselves to their altered work. More or less nutritious corn, more or less hay, straw, or other woody fibre, more or less wet bran, more or less soft pulp, more or less green food, are the simple agents by which the bowels of any horse can be kept in healthy, working order, without attacking them with any of the destructive poisons we have learned to call medicines.

680.—Very cold or hard well water is liable to disagree with any horse, but the great danger from water of any kind will arise from keeping the horse long without it, and then allowing him to drink too much at a time. If at any time the horse has fasted long, give him water in very small quantities, and food containing a large proportion of light woody fibre.

681.—All the diseases of the stomach, the bowels, or the brain, may be prevented by attention to these building materials. Stomach staggers, sleepy staggers, inflammation of the brain, apoplexy, vertigo, or lethrage, as well as colic, inflammation of the stomach, bowels, or peritoneum, are produced by faults of feeding or watering, and very often by long fasting an animal that nature never intended to fast long. Diseases of this class can be kept away, and often cured, by a correct supply of the horse's common daily wants, and strictly avoiding extreme and sudden changes of diet.

It may be quite right to feed your horse on turnips and straw, it may be right to feed him entirely on grass, it may be necessary to feed him principally on corn, but it is never right to feed him on grass alone one day, and principally on corn the next day, or *vice versa*. No horse's bowels can comfortably pass unmixed corn of any kind, or at any time, and it should never be given to him ; but the bowels are specially unfit to deal with pure corn when they have adapted themselves to comfortably pass on green bulky grass. Such extreme changes must be gradually effected.

The most common disease that is inflicted upon the horse by bad feeding or watering, or by sudden changes, is

COLIC.

682.—In this disease the pain is great but not constant. The horse lifts his hind leg towards his body, paws, lies suddenly down and rolls more or less violently, then gets up quickly without any indication of external tenderness or loss of power. It may be flatulent or spasmodic colic, but as we do not attempt to directly attack and overcome any particular disease, but only to help nature to throw it off, to invigorate the circulation and equalize the distribution of the vital fluids, no harm will happen if we make a mistake in such distinctions, or cannot even name the disease at all. For this, and for nearly all the diseases of the internal organs, the best thing to do is to draw the blood to the surface of the body, to get the skin at full work, to soothe the irritated nerves, and to draw off any offending secretions by a comfortable warm pack, or large body bandage.

683.—Hydropathy is not so easily practised on the horse as on the human subject. His form is not a convenient one to envelope in a roll, but the greatest difficulty is presented by the immovable coat of hair on the skin, which will always call for the exercise of more contrivance than need be exhibited by those who practise on a skin, the covering of which can be instantaneously removed or changed. The uncertain quantity of that covering in different animals, and in the same animal at different seasons of the year, or in different climates, makes it impossible to prescribe for unseen patients.

It may be laid down as a universal rule that you are never far wrong if you have made your patient comfortable, and that any lengthened departure from physical comfort, caused by your treatment is a proof that you have not taken the right course.

684.—When Priesnitz first discovered the wonderful power of water, as a curative agent, he unfortunately concluded that cold was a great factor in the business, and his usefulness, though great, was very much curtailed by that error. It was left to those good philanthropists, Mr. and Mrs. Smedley, to demonstrate on more than twenty-five thousand patients that warmth is in nine cases out of ten, far more usefully associated with water. The popular and professional idea that warm baths, or warm packs, are weakening, is utterly at variance with the truth. They soothe by removing irritation, and superficial observers have mistaken that for weakening.

685.—Of course a horse with colic must not be tied up, or kept in a narrow stall. He should be placed in a warm, roomy, loose box or shed, and well littered with straw up to his knees. In all cases of internal inflammation, or pain, your first care should be to get the legs and surface of the body warm, always remembering that they cannot be warmed with bad air, or with air deficient of oxygen (99 to 114.).

686.—To pack a horse well you must pack him quickly, so that you will be the better to have two or three reliable assistants, and every article you will want should be at hand before you begin. You will want five large blankets, or large woollen horse cloths ; one piece of woollen or cotton cloth 10 feet long by 2½ feet wide ; four small packing needles, and a good supply of sail twine, in long lengths for the needles ; a small tub of scalding water, and a small towel.

687.—One of the blankets should be six inches shorter and narrower than the other four. Take this smallest blanket and put it soaking in the tub of hot water, which should be about 160°. Whilst your assistants see that every part of the blanket is equally wetted, and the four needles threaded with long soft twine, you should take the towel dipped in the hot water, and cooling it just enough to prevent scalding the horse, rub it along each side of the spine from mane to tail, well wetting the hair for about two feet on each side of the backbone, but without using water enough for any to run down his sides. Whilst you are doing this quickly, so as to give no time for cooling, two of your assistants should take the blanket out of the hot water and slightly ring it, and, whilst just as hot as the hand will bear it, let a man at each corner bring it over the horse's back, and clap it on him, with the longest way across him. See that the blanket reaches equally low on each side, and from the root of the tail to as far as it will go on the neck.

688.—The horse must be kept from lying down until the packing is completed. This may be done by tying his head high up, or if you can spare a hand to hold him, and to prevent his lying down by obstructing his nostrils with the wetted towel if he threatens to do so.

689.—Quickly cover up the wet blanket with the four larger dry ones. If the dry blankets are not larger than the outside edges of the wet one, they must be put a little out of the centre, so that two of them will overlap the wet blanket all round, as it is necessary that the dry blankets should come at least three inches beyond the wet one at every point. Now throw the 10 by 2½ woollen or cotton cloth across the back, over all the blankets, and draw it tightly round the body, sewing securely where it overlaps. Take care that the sheath is not covered up or obstructed by it. With the needles and twine let all hands draw first the wet and then the dry blankets tightly round the neck, behind the thighs, and fasten to the legs. Then liberate the horse and let him roll if he likes.

690.—Inject two or three quarts of warm water into the bowels, and pour about a pint of peppermint tea down the throat. This may be repeated every hour, until the horse is free from pain, or inflammation of the bowels has set in. Small quantities of ginger, grains of paradise, anise, or carraway seeds, may be given with advantage. They should be finely powdered and given in warm water.

691.—The pack may be kept on without change for three or four hours. If at the end of that time the horse is still in pain, the under blanket must be again dipped in hot water. To do this get all the stitches cut or unfastened, so that everything can be taken quickly off the horse. Have by you the tub of water 160°. Take off the ten feet binder and all the blankets. Dip the under blanket in water and wring it out. Repeat the dipping and wringing once or twice, then clap the blanket hot on the horse's back as at first, and cover up quickly as before. The hair will require no wetting, unless the pack has been unchanged too long. The blanket that went next to the wet one would be better put out to dry, if you can get another dry one to put on the outside at the top. This may be repeated every three or four hours for days together, if the state of the patient should demand it so long.

692.—When the pack is to be discontinued, take off all the wet or damp blankets, and put on one or two dry ones. Change them frequently until the hair is quite dry. If the horse has recovered from the attack of colic he will probably be well enough to walk or gently trot about, either with or without cloths until quite dry.

693.—With reference to physic in this disease Dr. Dadd, of Boston, says, "Men have strangely erred in recommending medicine—castor oil, salts, aloes, opium, turpentine, &c.—for the cure of colic, and, perhaps, we ourselves are not free from blame in this matter. Experience, and nothing else, has changed our views, and we give them for the benefit of man and horse. Experience is the only true guide." * * * "We have frequently cured alarming cases with a little peppermint tea alone, whereas had the subject been treated after the fashion of some, the malady might, as it often does, have run on to a fatal issue. * * * Inflammation of the bowels is very apt to set in during an attack of colic, from the use of spirits or oil of turpentine, and other popular nostrums, and it is much to be deplored that so noble an animal as the horse should be made to undergo such torture as he is known to do from the administration of turpentine." Dr. Dadd also quotes from another veterinary surgeon, who, writing in the "Veterinarium," vol. 25, page 432, says, that he was called to attend a horse with apparently colicy pains:—"The village smith was summoned, who prescribed a large dose of oil of turpentine, which was repeated, but the symptoms increasing rather than abating, I was sent for. But alas! ere my arrival the medicine had done its work, death having relieved the animal from farther maltreatment.

CALCULI, INTERSUSCEPTION, AND ENTANGLEMENT OF THE BOWELS.

694.—An attack of the colic, pure and simple, will most likely disappear with the treatment we have advised in from one to three hours. If it does not something more serious may be strongly suspected. There are several disorders of the bowels in the horse, which exhibit all the symptoms of colic, which are quite incurable. A hard, polished, oval stone sometimes forms in the intestines, and continues to increase in size, until it forms a complete obstruction, and the horse dies in great pain. These stones are sometimes so near the anus, that they can be reached by the hand. We have seen a veterinary surgeon break one of these stones to pieces in the horse's rectum, with a hammer and a long steel set. As might have been expected it proved only a very cruel way of killing the horse. The intestines will sometimes overlap or enfold each other, and at others will get twisted into nooses or knots, as firm as if purposely tied, forming a complete and immovable obstruction.

INFLAMMATION OF THE BOWELS.

695.—When the colic pains, at first intermittant, become longer in duration or constant, when the horse grows weaker and flinches from external pressure of the body, and the feet and ears grow cold, inflammation of the bowels has commenced, and you have a long, dangerous and very painful case before you. Pay great attention to the pack, as your sheet anchor of hope here. Increase the injections and remove any hard accumulations within reach, with a well oiled hand and arm. Get the legs well rubbed by hand, and loosely bandaged with flannel. Life or death here is just a question of whether you can or cannot keep enough blood at the surface and extremities. After the accumulations have been removed, and the rectum washed out with abundance of warm water, or soap and water, inject a quart of warm thin gruel, made either from oatmeal or from coarse sharps, and repeat the injection every hour.

696.—Get the horse to drink as much water as possible, in any shape that he can be got to take most of it. Very thin gruel would be best for him, but if he will not drink that, give him slightly warmed water, if he will not drink that, give him cold water, in small quantities at a time, but as often as he can be got to take it. If he will not drink pretty freely and often in any shape, pour very thin gruel down his throat, as water he must have, and without it he cannot recover.

697.—Food at this stage is of very little consequence. The horse must not have much, and had better have none than take anything unsuitable. The best food will be a very little withered grass, free from buttercups or other injurious weeds. If this cannot be got, carrots, swedes, and a very little sweet hay may be given. Very coarse clean bran may be given, wetted with warm water, and mixed with a little chaff. Not a grain of any kind of corn must be given, nor must the horse be drenched with starch and fine flour so commonly recommended, and so fatally administered.

698.—No medicine of any kind is admissible here. The most rash drug dealers would hardly venture to pour their medicines down the throat of an animal in this state. Even Youatt breaks loose from the drug school here, and ventures to follow the severe lessons of his own experience. He says: "The human practitioner gives, under this disease, and with advantage (?) very powerful doses of purgative medicine, and he may be disposed to demur to the cautious mode of proceeding we recommend with regard to the horse. Although we may not be able to give him a satisfactory theoretical reason, in defence of our treatment, we can appeal to the experience of every veterinary surgeon, that a strong dose of physic given in inflammation of the bowels, would be certain poison." Dr. Dadd says: "Super purgation, induced by active cathartics, would be equivalent to a sentence of death."

DISEASES OF THE BRAIN,

699.—Such as are enumerated in paragraph 681, are all traceable to the digestive organs. They are the effect of long fasts and dry, concentrated, stimulating food. The horse affected with either of them should be warmly packed over the body, especially the spine (686 to 692), and have cold wet cloths over the head. He must be carefully kept from corn and have but little hay. Get the bowels open, with green food, wet bran, or carrots.

When recovered he should not again be put to long fasts, or to high, dry feeding, and irregular work. He can only safely be put where he can live chiefly on green food, with moderate, regular work, and no very long fasts.

DISEASES OF THE RESPIRATORY ORGANS.

700.—Though often brought on by severe exposure, by sudden changes of temperature, by cruel over exertion, especially after enforced inaction, and still more frequently by bad air, are all greatly aggravated by very high and very dry dusty feeding. High inflammatory diet, or rich concentrated food, is always dangerous to the bronchial tubes of either man or horse. Simply leaving off meat would do more to cure bronchitis in man, than all the medicines in the world, and giving our stabled horses more turnips and less hay, would tend in the same direction. Dry clover hay is especially dangerous to the wind, and all fusty hay. The dust from fusty hay is probably drawn into the lung cells, and does direct mischief in that way. But eating a large quantity of bulky, innutritious material necessarily expands the bowels and other organs of nutrition, so that the lungs are fixed into too small a space, and are sure to suffer from the pressure. No gross feeding horse should have as much of any kind of hay as he will eat. The old fashioned, lymphatic, gummy legged horses were great sinners in this respect. Their owners were too often ignorant of turnips as horse feed, stingy with corn, and prodigal with hay, and as a consequence their horses were very often what they called "touched in the wind." This is in Britain broken wind, in America heaves. The latter term expresses the heaving, uneasy motion of the flank which characterises the disease.

701.—One of the most beautiful sights ever seen under the microscope is the lungs of the beautiful toad. The lungs of the horse can only be understood at all by seeing a portion of them under a microscope, and even so it is impossible to comprehend their extremely delicate texture, or how so many millions of invisible tubes can be formed and sustained in such a small compass. Every particle of blood in the horse's body comes several hundred times a day into these invisible tubes to meet the air that is breathed into adjoining invisible tubes. The blood and air do not mingle together, and yet the invisible membrane that separates them is so inconceivably slender that the oxygen of the air can pass through it to the blood, and the carbonic acid gas of the blood can pass through it to the air. Dr. Watts did not know all this when he wrote—

> "Strange that a harp of thousand strings,
> Should keep in tune so long."

Here is a harp not with a "thousand strings," but with millions of invisible yet perfect tubes, each one actually carrying its modicum of blood, or air, and exchanging a part of both, without confusion or any fatal mixture. It is impossible to understand how anything so perfect, and yet so minute can be constructed at all, far less how it can be kept freely and rapidly working, with such a material as blood passing through such invisibly small tubes. No one knows how it is kept going ; man has only lately discovered that all this is actually accomplished ; only lately discovered something of the deep meaning of the words of David, "I am fearfully and wonderfully made."

702.—When we thus get a little idea of what the machine is, we can at least easily understand what a little thing can obstruct it, and how helpless we are to set it going again. The muscles may rest, the nerves may rest, the brain may rest, the stomach may rest, but the lungs can never rest. We can live some time without food, and even without a new supply of water, but we cannot live at all without a constant supply of air. And just as we can in a thousand ways, spoil the natural air, but can never improve it, so we can spoil the lungs, but can never improve them by anything we can send into them.

703.—There is only one way in which we can help the lungs, and that is by calling on the skin to do some of their work or more frequently by taking care that the skin does not leave its own work for the lungs to do. The skin and the lungs should both be at work purifying the same blood, and, roughly speaking, each usually takes about the same quantity of waste material out of the blood. Each breath that carries in oxygen carries out its load of carbonic acid gas, water, and waste material, whilst the skin is silently carrying off almost the same, so that any failure on the part of the one puts more work on the other. When the lung cells are closing, and consequently dying, as in consumption, the skin tries to do double duty, as in the night sweats that mark that disease. When some of the pores of the skin have been closed, as they are in what we call a common cold, each breath from the lungs is overloaded with the moisture that the skin should have taken off.

704.—Now it is dangerous to let the lungs do the work of the skin, as well as their own, for a single hour. It is dangerous, and always permanently injurious, to call on the bowels, or the kidneys, to carry off anything but their own proper excretions. The skin, on the contrary, can be assisted to do double duty for weeks or months together, not only without injury, but with great advantage to itself, as well as to all the rest of the body. We can get at the pores of the skin ; we can take away every particle of dust or adhesive matter that obstructs them ; we can even soften the recently closed pores, as with a poultice ; we can warm and steam them, and liberate the chilled perspiration that had obstructed them, so that the blood will not have to pull them down and build new ones, as it must otherwise have done. In so doing we not only relieve the lungs but we get a better skin, more able and more willing to do its work in future, and less liable to become obstructed or diseased.

705.—If a large portion of the pores of the skin are obstructed and are allowed to remain so, the lungs cannot long continue their necessary work. Only healthy, well warmed, and purified blood can pass through such delicate, small tubes, and obstruction is destruction or death to them, so that if the skin long and seriously fails to do its share in refining the blood, the lungs will not only soon fail to do double work, but will soon be unable to do any work at all. Each obstructed tube, either in skin or lungs, soon becomes a piece of dead, decaying animal matter, that instead of purifying soon begins to poison the blood.

Hence the fact that when an eighth part of the skin has been seriously burned, even in the most healthy person, recovery is regarded as hopeless, because so much dead, putrid, and therefore deadly poisonous matter has to be taken up by the blood, with a diminished purifying surface to get rid of it. The blisters. the Spanish flies, or ammonia, so commonly prescribed for disease of the lungs, perform the same work on the skin as a fire would do ; that is, they destroy a portion of the purifying surface of the skin, and substitute for it dead, putrifying matter, that must be taken up by, and poison the already diseased blood. In other words they give the blood a certain amount of poison to carry into the lungs, where there is already such a load of poison of the same character wanting to be carried out.

706.—The only rational treatment in any disease of the respiratory organs is to get the skin to work as actively and efficiently as possible (686), and to put the lungs in free communication with the purest possible air. As Miss Nightingale found that her patients recovered under the hedges at Sebastopol, whilst they died in the foul air of the "comfortable" hospitals, so your horse is more likely to recover turned out in a snow storm—bad as that would be for him—than in a "comfortable" stable full of foul air. Clothe him warmly, especially his legs, but let him breathe fresh, pure, air, wherever he may have to go for it.

SYMPTOMS.

707.—In all diseases of the respiratory organs the horse refuses to lie down. This will always distinguish them from diseases of the digestive organs. In inflammation of the lungs the horse stands with his fore legs stiffly fixed and sloping outwards like the legs of a rough stool. He is unwilling to move, and though evidently weak, determined not to be down. He stretches out his neck and head so as to keep the windpipe as straight as possible, and lets the head drop low enough to put the weight on the strong ligament or cord, called the pack wax, and relieve the muscles from any exertion in supporting the head. His nostrils open wide, and their lining is a livid red, turning purple as the disease progresses. The breathing is quick, but not deep. As the blood cannot get through the gorged lungs the circulation is impeded, the heart is struggling on arteries that have no outlet, so that the pulse is felt, if felt at all, as a mere feeble fruitless vibration. The ears and legs are very cold.

708.—Long before the disease has reached this stage, the pack (686) should have been applied, keeping the blood at work on the surface. The legs should also have been packed in the same way, with wet and dry bandages, but more frequently changed, with water as hot as possible. If you have thus relieved the first symptoms of distressed breathing, by treatment that would be right and beneficial in any case, and could never do any harm, you have saved your horse. But if the lungs are once congested, or hopelessly obstructed by blood that is fast becoming an immovable, and therefore putrifying mass, the only humane, and the only wise thing to do is to put a charge of shot through the horse's brain, or consign him to some equally painless death. He must suffer intensely ; he will require a great deal of careful nursing day and night ; he will most likely not recover at all ; he will be some months before he can be fit for anything, and then he will never be a sound horse ; never one that a humane man would like to work himself or to sell to a brute that would work him.

709.—We have known a man who could well afford to shoot a poor animal that had served him well for some years, pay eight pounds to a veterinary surgeon, four pounds for day and night nursing, and certainly not less than ten pounds for four months keep, and then sell the poor free animal for four pounds, to see him come panting and roaring by his house every day in a baker's cart.

710.—S. Sidney, in his sensible and beautifully illustrated "Book of the Horse," says, speaking of this disease—"In the case of a low priced horse, with an acute attack we are convinced that the cheapest plan is to have him killed at once. He will be three months on the sick list ; the surgeon's bill, night work included, will be ten or twelve pounds ; and if he comes out a roarer, as he probably will, he will not be worth that sum, unless he is big enough and strong enough for a plough or harrow horse." We fail to see why this should be limited to a low priced horse, as that would not affect his value as a wreck.

711.—Youatt puts the hopelessness of complete recovery very clearly when he says in reference to this disease,—"A surgeon who practises on the human body will obtain the gratitude of his patient, if he so far removes a severe affection as to enable him to live on with a certain degree of comfort, although his activity and his power of exertion may be considerably impaired ; but the veterinary surgeon is thought to have done nothing unless he renders the animal perfectly sound—unless, in fact, he does that which is absolutely impossible to accomplish."

712.—The inflammation is confined to the membrane that covers the lungs. The attitude and determined standing are the same as in inflammation of the lungs, but here the blood is still passing freely through the lungs, so that the pulse is hard, distinct, and full. There is the same unwillingness to move, or to draw a full breath, as every expansion of the lungs presses on the inflamed and sensitive membrane.

The horse will grunt with pain when tapped on the outside of the lungs, and flinch from pressure on the side. He is less stupified, and more sensitive, than when the badly oxyginated blood of pneumonia is passing through the brain. The internal covering of the nostrils is not red or purple in pleurisy. This disease is more curable than pneumonia, and the horse may be perfectly restored by packs and bandages, applied early, as in inflammation of the lungs.

713.—With bleeding and blistering it frequently terminates in dropsy of the chest. This is easily let out with the common trocar, used for dropsy in the human subject, but even Youatt admits that it has "very seldom saved, or much prolonged the life of the animal." The trocar is entered between the eighth and ninth ribs, and close to the cartilages.

BRONCHITIS.

714.—What we have said under the general remarks on the bronchial tubes, is really all that we can say about bronchitis, or any of the minor diseases of the respiratory organs. We may support this opinion by quoting the exact words of Dr. Dadd, when writing of this disease: "The bowels are to be kept loose, not by purgatives, for their action on the digestive surfaces is sure to make matters worse, the patient must be kept on a sloppy kind of diet, well seasoned with common salt. Fine feed, bran scalded, and placed before the animal while warm, answers two purposes, viz., that of relaxing the engorged surfaces of the nose and throat from inhaling the warm vapour, and also has a relaxing effect on the bowels, which are apt to become torpid sometimes from no other cause than want of exercise. If the patient be carried through the various stages of bronchial difficulty, with an eye single to his comfort and convenience, and proper attention is paid to the wants of nature, the skin kept moist, the bowels loose, the patient having the advantages of a pure atmosphere, then the case, if it is a curable one, is sure to terminate favourably."

715.—To this we must say from experience that the salt should be very small in quantity, as it has a particularly drying effect on the bronchial tubes, and that grass, swedes, turnips, or carrots, will be found better than too much sloppy food. The horse should have out door exercise, although it must be of the most gentle character. If he cannot walk two miles an hour let him walk one, and increase the pace as his tubes improve, but never distress him.

716.—When a horse is recovering from any of these bronchial diseases, he must get plenty of judicious exercise before he gets any work; plenty of slow work before he gets any fast work. He can never get fit for fast work by standing in a loose box. The breathing powers require to be gradually strengthened by exercise, even more than the muscles and sinews.

CATARRH, OR COMMON COLD.

717.—Attention to the skin, and general comfort of the horse, with wet bran and roots, little hay or corn, and no hard work, is the best thing to be done in this case.

718.—The nostrils may be cleared out, and the horse made more comfortable by putting a four bushel corn sack on his muzzle, like a very long nose bag. Turn the top of the sack down so that it will not be more than three feet long. Put in the bottom about six quarts of fine saw dust, mixed with two table spoonsful of turpentine. Hang it on the horse's head, so that the muzzle will be about two feet from the saw dust. Then cut a slit in the sack, just above the saw dust, and pour on the saw dust about two quarts of boiling water, adding more boiling water as it cools. The sack may remain on an hour or more, and may be repeated often. A wet pack will be very beneficial.

719.—Is a disease to which the horse is most subject between two and five years old, and to which he is liable only once in his life. Many horses do not take it at all. It is a gathering at the throat, between the jaws, and interferes much with eating and drinking. Hot bran poultices, containing a little turpentine, are the best application, but require some little contrivance to keep them in the right place. When the swelling softens or points, the matter is better let out with a deep straight cut, and a linseed poultice, without turpentine, applied. There is a cough which comes on in fits, especially when the horse tries to drink. After the gathering has opened, either naturally or artificially, the cough will disappear.

GLANDERS AND FARCY.

720.—Glanders is an infectious, incurable disease, which the horse may even communicate to man and other animals. In England, it is less common than it once was, probably owing to the better application of the laws that forbid the sale of a glandered horse, and make his owner liable for damages caused by his existance. In America no law seems to be tolerated in this direction. There the individual liberty of the subject is said to be so sacred, that every man must be allowed to harbour a glandered horse and an Irish dynamiter. On the same principle he should be allowed the privilege of keeping a mad dog, and setting fire to his own city house. No honest man should own a glandered horse knowingly for a single hour, and no laws should allow him to do so. The disease might no doubt be stamped out by legislation.

721.—We know that all the "authorities" are against us on this subject. Professor Coleman is said to have asserted that "not one horse in a thousand receives the disease from contagion." Dr. J. Russell Manning, of America, says the disease "is doubtless due far more frequently to predisposing cause than to contagion." In this they are supported by such undoubted authorities as Percival and Youatt, but in all such matters we have learned to pay more respect to undoubted facts, than to great names. We remember how positively the same statement was made by equally high authorities, about the scab in sheep, but where severe restrictive legislation has been tried it has soon proved that there was really nothing but contagion to fear.

722.—We are the less inclined to bow down to their view of the case when we see that all three of them take the same case for what they call a "demonstration" of their view of this matter, and that case a very feeble one. Mr. Youatt tells us, that Mr. Percival quotes Mr. Coleman's statement that "In the expedition to Quiberon, the horses had not been long on board the transports before it became necessary to shut down the hatchways (we believe for a few hours only), the consequence of this was that some of them were suffocated, and that all the rest were disembarked either glandered or farcied."

723.—It must strike any carful reader how very possible and probable it is, that in horses shipped from an infected country, a recently infected horse may have been taken on board, and that being all watered from the same buckets, the disease would be communicated to all. Against this one very poor case in favour of their supposition, we have the undoubted fact that tens of thousands of horses have been shipped, between Australia and New Zealand, and although thousands of them have been killed by bad air, no case of glanders has ever been developed. Nor do the lowest and most filthy stables produce the disease in those countries where it has never been introduced. Of course, in this, as in any other disease, a vigorous, well treated horse, living in good air, may ward off a degree of infection that would be fatal to a weak horse, or one less favourably situated.

724.—The first indication of this disease is generally a slight regular discharge from the left nostril, of a clear, but very gluey, sticky fluid, without any of the usual indications of a common cold. As soon as any suspicion is aroused, on this life or death question, refer the matter at once to the most competent authority at your command, and act promptly on the information so obtained.

725.—The same may be said of farcy, which appears to be the same disease under a totally different manifestation. The most able and experienced men are sometimes so unable to decide upon the early indications of this disease, that they are obliged to settle the point by trying some of the discharge on the nose of a worthless donkey or horse. It would therefore be impossible to give sufficiently reliable directions in a book.

DISEASES OF THE URINARY ORGANS.

726.—The horse that has as much corn as he can eat, with no roots or green food, generally voids thick, ropy urine, passing it in small quantities, with more or less straining, and evident pain. This state of discomfort is often made much worse by the administration of drugs and poisons, called diuretic medicines. In many stables we find nitre, rosin, or turpentine always at hand, and given to a horse as carelessly as if they were a bunch of carrots. Even Youatt says, "When the groom finds this difficulty, or suppression of staling, he immediately has recourse to a diurectic ball to force on the urine, and by thus farther irritating a part already too much excited, he adds fuel to fire, and frequently destroys the horse." Their destructive effect is greatly aggravated by the common, cruel practice of keeping the horse short of water, so that whilst injuriously stimulating the kidneys, to make them do more work, the only medium by which they can do their work at all, is withheld. Mow-burned hay, and either musty, or kiln-dried oats, act injuriously on the kidneys, and a strain of the loins will some times communicate inflammation to them; though much more frequently inflammation of the kidneys is mistaken for a strain.

INFLAMMATION OF THE KIDNEYS

727.—May be very severe, and destroy the horse in a few days, or it may hang about him for months, and even years, with little notice taken of it. It is indicated by a straddling, stiff gait of the hind legs, a difficulty in turning round, and a crouching with pain when the loins are pressed on. A continual desire to void urine, which comes in small quantities, and is often, but not always, high coloured—sometimes bloody.

728.—The corn should be withheld, the hay very limited, and very good. Roots and wet bran may be freely given, so as to keep the bowels actively at work. You may make the skin work for itself and the kidneys, with the warm pack, and take care that the lungs get good, dry, pure air to carry off their share.

729.—Get one pound of marsh-mallow roots, dry or fresh. Bruise and boil one hour in six quarts of water. Give the horse a pint of this decoction every six hours. If marsh-mallow roots cannot be got, asparagus roots, sprouts, stems, or foliage, may be substituted. A large poultice of marsh-mallow leaves may be placed hot on the loins.

IN INFLAMMATION OF THE BLADDER

730.—No better treatment can be adopted than that we advise for the kidneys, and it is by no means easy to say which the horse is suffering from. When it is inflammation of the neck of the bladder, the bladder is likely to be full, and may be felt under the rectum, by carefully introducing the oiled hand. If it is inflammation of the neck of the bladder, or obstruction in any part of the passage, asparagus roots will be better than marsh-mallow roots, as they have a more relaxing effect upon the muscles.

731.—It is often by no means easy to decide what portion of the urinary organs is involved, and hence one of the great advantages of hydropathic treatment, as in any case we must do good if we can put upon the healthy skin, the work which the urinary organs, from any cause, are unable to accomplish.

THE LIVER.

732.—The horse has seldom anything wrong with the liver. He eats no meat, takes no grog, and is never long idle if he can help it. He has no gall bladder, and consequently no liability to form gall stones. As he was never made to go long without food, and has no food cupboard like the ox, the gall flows into the bowels, as it is extracted from the blood, without any reservoir in which to accumulate.

JAUNDICE.

733.—Or a yellowness resembling it, about the eyes, &c., is not unknown, but disappears easily with lower fare, and bowels relaxed with succulent food.

DISEASES OF THE SKIN.

734.—The skin of the horse, like our own skin, is a wonderfully fine sieve, through which water is constantly passing and taking away worn out materials, injurious acids or gases, and even mineral or vegetable poisons, that have been poured into the stomach. It is the great safety valve of the system, more constantly essential to life than any other, except the lungs. An animal with completely obstructed skin, dies far more quickly than with obstructed bowels or kidneys. The great capacity of the skin to regulate the temperature of the body is altogether beyond human comprehension. It is, too, the only one of the depurgatory surfaces that we can really get at, and that submits kindly to our interferences. The internal skin is a continuation of the mucous membrane, or of the skin that covers all the internal cavities. In the nose the two skins are less alike either in appearance or function, than in the human body, but there is the same constant sympathy between the inside and outside membrane, so that it is impossible to benefit or injure the one without the effect being felt on the other. This is a fact known to all physiologists and recognized by medical practioners of every school.

735.—Until within the last fifty years the skin of the horse was much better understood and much better treated than our own. The great assistance it could be made to give, both to the digestive organs and to the lungs, was early discovered by trainers for the racecourse or the hunting field, and horses in such hands are not only found with skins invariably healthy, but almost always kept in a very high state of efficiency by the frequent and vigorous use of the brush. In fact it is not common to find any disease of the skin in any well managed stable.

SURFEIT.

736.—Is a name used to describe any disease of the skin for which no other name can be found. It may be the result of irregular unwholesome feeding, of a sudden check to perspiration from cold, or from an accumulation of filth which the horse has not been able to remove for himself by rolling in earth, and which a negligent attendant has not removed for him. Or it may be the result of starvation which has deprived the skin of its natural lubricating oil. Always remember that a horse may be starved by indigestible food as completely as by too little food. Beans, or any excessively forcing, dry and astringent food, given to a horse that has been let to get down in low condition, will sometimes produce a very troublesome irritation of the skin, which is not easy to remove. Some of these affections defy every effort to cure them, and we have seen them continue through life, though the horse was a constant patient in the hands of a veterinary surgeon. Do what you will you can never make a skin that has had much wrong with it, look all right, until the time comes for it to get a new covering in spring or autumn.

737.—Medicine of various kinds is largely given for these disorders, and the horse is not unfrequently salivated, in which case the medicine is more harmful than the disease. Cleanliness and comfort, regular and moderately succulent food, that will keep the bowels working freely, will generally effect a cure more quickly than any medicine, and will certainly restore the horse and his skin to much better condition. But in old standing obstinate cases, especially where a lot of medicine has been given, it cannot be done quickly with any treatment. Wetting the affected parts with strong vinegar will sometimes relieve itchiness, if it does not, the horse may be washed all over in hot water, mixed with Little's Chemical Fluid; one part of fluid to twenty of water.

WORMS.

738.—When a horse takes every opportunity of rubbing the hair off his tail, and is after all not relieved by the operation; or when outward applications have no effect upon it, the irritation probably proceeds from small worms in the rectum. Occasional applications of salt, or salt and quassia, will keep these parasites down.

739.—Boil two ounces of quassia chips, in two quarts of water, for half an hour. Strain off the chips and put half an ounce of salt in the liquid. When blood warm gently inject into the rectum. If retained half an hour or more it will give great relief, but if expelled immediately try again next day.

740.—This simple remedy may be repeated whenever the worms are seen to be troublesome, and will never do any harm. But don't pour in the salt without weighing or measuring it. Physic will injure the horse without injuring the worms.

MANGE.

741.—If the short hairs at the root of the mane come out easily, and the horse stretches out his neck, tosses his head, and exhibits a desire to increase the friction of your fingers when you touch his mane, it will be a case of mange. In that case you have not an obstinate, but a very contagious disease to deal with, and one that will have been communicated to every horse that the diseased horse has touched, that has rubbed against the same stalls or posts, used the same clothes or harness, or been cleaned with the same combs or brushes.

742.—It is not difficult to cure ; you have simply to destroy an insect that is burrowing and breeding in the horse's skin. The insect is called the acarus, and buries itself in the horse's skin just as a smaller insect will do in the neglected skin of man, producing the itch ; or in the skin of the sheep, producing the scab.

743.—The skin may be washed all over with sulphur, dissolved in boiling lime water, and used warm. The sulphur will not dissolve in water without lime. Little's Chemical Fluid, or any of the good sheep dips, or preparations of carbolic acid, or glycerine may be used in the same way, and where they can be got, are more pleasant in their action on the skin. As the insects or their eggs are completely protected under the skin at certain stages of their development, no one washing will destroy them all. To ensure a cure it will be necesary to repeat the application every third day for a fortnight. At the same time every thing that the horse could have touched whilst the insects were alive must be destroyed, or purified, with a strong solution of chloride of line, or of carbolic acid. Say one pint of either to twenty-five pints of water.

744.—Mange can thus be cured with certainty, but its extremely contagious character must never be lost sight of, nor the possibility of the insects living a long time in the harness, cloths, brushes, combs, or anything that the horse has touched. The same insect will not live in the human skin, so that there is no danger to man, though there will be to cattle, and perhaps to dogs. With any disease of this kind no half and half measures should be tolerated. Let the treatment be vigorous and sufficient with no fine drawn calculations about how little will do. We once knew two farmers who bought a flock of scabby sheep between them, and divided them equally. The one farmer dipped his sheep four times during the first two months, and never saw anything of the scab again. The other dipped his twice during the same time, and kept the scab for seven years ; dipping his flock two or three times a year, and losing half his wool and half his lambs, with the disease all the time.

GREASE OR SCRATCHES.

745.—Swelled legs, with the hair standing out horizontally and a cracked, itching skin about the heels, discharging offensive matter, are called by different names in different parts of the world, but everywhere indicate a bad circulation, and a badly lubricated skin. It does not come to the horse at liberty, nor to the regularly exercised and thoroughly shampooed racer or hunter, but to the half tender, tied up, over fed, and over worked post or cart horse. It is generally caused by excessively exhausting work, alternated with enforced inaction, and from dry stimulating food, containing little of the variety to meet every want that the horse would find for himself in a state of nature. No variety of action, no variety of rest, no variety of food, and too much pollution in the air, are the general causes of all such diseases. More natural and varied food, more natural rest, and more pure air are the only real remedies. It is greatly aggravated by the diuretic drugs so often given to cure or prevent it. A regular allowance of roots and succulent food that would keep the bowels acting pleasantly, and a constant supply of water to carry off all humours, would be far better than all the medicine yet discovered. Stalls raised in front, and low behind, with holes to let in the horses hind feet, help on the mischief.

746.—The horse should be put in a loose box, or some place where he can at least turn round and lie down in peace and comfort. Keep his skin at work with plenty of friction, and great cleanliness. The cracked heels should be washed morning and night, with warm water, and then painted over with finely powdered charcoal, and flour of sulphur, in equal parts, mixed with linseed oil to the consistence of thin paint.

THRUSH

747.—Is a diseased state of the frog caused by depriving it of its natural work, cutting away its natural covering, and bringing it in contact with wet fetid matter, such as cow dung, used for stopping, or horse dung and urine, allowed to accumulate inside of a projecting shoe. With such treatment the frog often becomes soft and tender, discharging a fluid with a strong offensive smell. In this state no use can be made of it, and it will take a long course of sensible treatment to restore it to usefulness. The horse must go as best he can without a frog, as most horses do, but if it is left uncut, kept clean, and the tender, offensive cracks dusted with a little powdered blue stone, a useful frog may eventually be grown, and may be kept useful by treating it as recommended in the chapter on shoeing.

SAND CRACKS.

748.—Some breeds of horses have very brittle hoofs. These sometimes crack open in the direction of the grain of the hoof from top to bottom, so as to expose the extremely sensitive quick, and cause lameness. They are most liable to do this in warm, dry countries, but the disposition is decidedly hereditary. The mischief is greatly aggravated by the common practice of putting all the horse's weight on the unyielding outside crust of the hoof, instead of allowing the elastic frog and quarters to take the large share of it which nature intended them to receive. Where the natural cushions have not been destroyed, lameness may at once be removed by shortening the crust of the hoof, and letting more weight come on the frog and middle of the foot.

STRAINS

749.—Of the sinews, muscles, or joints, from whatever cause, are best treated by abundant and active applications of hot water. Where possible let the injured part be soaked for hours together in water, as hot as can be comfortably borne. Where this is not possible, let the part be kept wet with hot cloths, covered with flannel. Nothing should be tight round the limb, nor anything be allowed to impede the circulation.

750.—Let no firing iron, blister, charges, or plasters, come near your horse, as besides their barbarity they can do nothing but mischief. They only destroy the skin that should help us to cure.

Dr. Dadd says "It was customary but a few years ago, to apply charges, and plasters to the back, for the cure of strain and lameness. But the day of plasters, in human as well as veterinary practice, has gone by ; they are now only used by those who have never taken the trouble to understand the exhalatory function of the skin, which salutary function plasters obstruct; the wet sheet next the skin, and a blanket over it, will be more likely to do good than a plaster."

751.—In the warm climate of Australia, a lame horse is often tied for hours together in a water hole, two or three feet deep with evident advantage, but this cannot he done with comfort and safety in really cold water. Even such clumsy resorts to nature's great "remover," are more safe and more effectual than the most learned and artistic application of those destructive and painful agents with which the horse has been so long treated.

CURLES

752.—Are caused by a malformation of the bones of the hind leg, below the hock. When these present a projecting, rounding, or convex surface, they cause great friction to the tendons that pass over them, and no horse so formed will ever stand fast work young. The firing and blistering, resorted to here, do nothing but mischief, though they often get the credit of effecting a cure which is really nature's work. This formation generally improves after three years old, and the surface of the tendon grooves probably becomes more polished, whilst of course the sinews harden, so that if such horses can be kept to slow, moderate work, like ploughing and harrowing, until four or five years old, they often stand hard fast work very well after that age.

WOUNDS.

753.—In a state of nature with succulent food, complete liberty, and unpolluted air, the horse will recover rapidly from very serious wounds.

754.—When an important artery has been severed, and the horse is likely to bleed to death, before any one can be obtained with sufficient skill and the proper appliances to tie it up, the bleeding may be arrested by putting a soft, strong loop of canvas, cloth, or linen very loosely round the limb, on the heart side of the wound, and drawing tight by twisting it with a short stick.

755.—Wounds made with a sharp clean instrument, and attended to before they have been much exposed to air, or any foreign substance, may be sewn together with horse hair, waxed twine, or silver wire, putting no more stitches than are necessary, and tying each stitch separately. This must not be done unless the wound can first be made perfectly clean. The growing together of smooth, clean surfaces in this way, is not so often successful with the horse as with the human subject. The horse will gnaw the stitches if he can get at them. He has the power to move and shake his skin, in a way that we cannot move ours, which severely tries the stitches. Any confined matter in anything like aggravated wounds of the horse, has a strong tendency to corrode, and produce great mischief if it is not let freely off. It is always most dangerous to close an outer surface if there is any mischief left under it.

756.—In rough jagged wounds, wash very clean with warm water. It will generally be better to cut away the loose injured parts than to try to restore them, especially if they have been long exposed.

757.—In deep punctured wounds, all foreign matter must be removed at any cost, however deep you have to cut for it. When the hoof has been pierced to the quick, it must be cut away, and a free opening made for all matter to get away. If this is not effectually done matter will form behind the hoof, and often cause death by mortification or lock jaw. The hoof must be kept soft and wet by poultices, or applications of water.

GALLS

758.—Can with care be prevented, but there is no cure for them so long as the cause is continued. The skin of the horse, like our own skin, though naturally thin and sensitive, will thicken and harden so as to meet any reasonable amount of friction that may be required of it. But it must have time to do this, and will do it, most quickly and effectually, when regularly stimulated by friction applied so gradually as not to interfere with the integrity of its structure. In this way all the blood vessels are left in full force, to quickly supply all that is needed to build up the additional covering required to meet the demand of any special friction it may be necessary to provide for. So long as the skin is thus left whole and uninjured, whilst moderate friction is daily applied to it, it can quickly adapt itself to anything that will be required of it, but if such an amount of friction be suddenly applied as to break up the connection of the blood vesssls, and to destroy the healthy condition of the existing skin, a long time must be lost in first restoring a new skin before anything can be done towards providing a specially thick and hard one.

759.—If the injury has been carried so far as to make the destruction extensive and deep, the probabilities are that after losing a great deal of time in trying to repair the injury with damaged tools, the patch will not be a good one after all, and the new skin, besides being a perpetual blemish and eye sore, will never be as capable of enduring friction, or be as useful for any purpose as it would have been if hardened and thickened by patient reasonable means. Thus we see that here hurry is a great loss of time, and produces results as tedious as they are ultimately unsatisfactory. If you carelessly or stupidly allow a horse's skin to be seriously damaged, you have certainly lost a lot of time and have made it impossible to get his skin either so quickly or thoroughly fit for work as with more care and patience you might easily have done.

760.—See that saddles and collars fit, so that the pressure and friction will be equally divided over a sufficient amount of surface, and let the lining material be soft, free from lumps, seams, or grit of any description. A collar must never be too large, or the friction will be greatly increased. A saddle is best quite large enough, and although it should be as light as possible, the iron work in it must be strong enough to maintain its right form.

761.—But whatever care you take no two saddles or collars will press on exactly the same parts, so that the horse that has been hardened to his own saddle or collar will often gall directly when worked in a different one, even though it may fit him just as well as his own. Never start on a long important journey with any new gear that your horse's skin has not been slowly and carefully hardened to. Just as no sensible man would start for a long walk in a new pair of boots, however well they might fit him.

762.—The great thing is to watch the first symptom of tenderness, and never let it go on to soreness, far less to a broken skin. For a saddle, packing of some kind can always be got even on a journey, even though you take off your stockings and fill them with soft grass to shift the weight from a suffering part. A blanket or sheep skin can generally be obtained. With a collar there are many ways of putting the pressure higher or lower ; or if serious mischief has been done, a blanket or sheep skin, a shirt, or even a sack can be made to do duty as a breast strap.

763.—In those long journeys, where the horse starts full of flesh and arrives at its close a bag of bones, neither saddles nor collars can continue to fit, and the utmost daily care will be necessary to avoid adding to the poor creature's suffering by making it carry or draw you on a raw place. In such journeys examine your horse's back very carefully, two or three times a day, and take care that in saving one place you do not make a worse. Slacken your girths when resting, but do not remove the saddle until the horse's back is cool, and see that both his back, and the saddle are very clean before you put the saddle on. Washing with water or with brine does good, but do not rely upon stimulating oils, or any messes of that sort, as they always do harm.

764.—On such journeys keep your feet well home in the stirrup irons, so that you can bear most of your weight on them, and none on your hips. Walk quarter of a mile every half hour and down every steep hill. You will find all these precautions and indulgences repaid before the end of a long journey, whilst attempting to ride on the raw of a suffering creature's back is as improvident and impolitic as it is inhuman.

POLL EVIL AND FISTULA OF THE WITHERS

765.—Are caused by bruises and by neglected aggravated injuries to the poll or the withers. Poll evil is most commonly produced by blows, or repeated bruises, on the top of the head, just behind the ears. Fistula, is usually the outcome of long deep-seated aggravated saddle galls, where the pressure has been long continued regardless of all suffering. The disease is of the same character in each case, only differing in the locality. It is a most painful and intractable disease to deal with. The boil-like tenderness is so great and evident, the treatment so painful, and the recovery so slow and uncertain. The matter formed is of a most corrosive and irritating character, and is so situated that it cannot get away. Hence a constant tendency to eat its way downwards, through muscular fibres, and even to corrode the bones beneath.

766.—No treatment will be successful here that does not provide a free and sufficiently large opening to let off the corroding matter from the lowest part of the wound, however deep and critically situated that may be. The wound may be frequently and very thoroughly washed with warm water.

767.—In neglected cases of this kind we have had no experience farther than witnessing the suffering of a few horses, undergoing operations by veterinaries, where we had no control or authority. In all such cases the torture has been of the most undoubted character, and the resulting benefit altogether invisible.

768.—Dr. Dadd says, "Cases, however, occur which set at defiance all our skill. In such the ligamentary, tendinous, fleshy, and bony structures are involved, perhaps accompanied with fistulas, running in various directions, like so many pipes or drains, and the difficulty of closing the latter is, that they acquire a mucous lining, and all mucous canals are very difficult to unite. The only remedy in such cases is the knife : the part must be laid open and all fistulous pipes dissected out. Should a portion of the bone be diseased, that must also be removed. The chasm is then to be cleansed with a solution of chloride of lime or pyroligneous acid, its edges brought together by suture, leaving an orifice at the lower part for the discharge of matter. Our object must still be to heal by adhesion, as already described. Should we fail in this, and the part assume a morbid type, inject and dress it with equal parts spirits of turpentine, pyroligneous acid, and linseed oil. Fir balsam has also a very good effect on indolent and morbid parts. So soon, however, as the parts show a disposition to heal, dress with tincture of aloes and myrrh." For such an operation the horse should undoubtedly be put under chloroform (770.)

INJURIES TO THE EYE.

769.—The horse often loses the sight of an eye through the lodgment of some foreign substance, such as chaff, or grass seed, or through bungling attempts to remove it. The best way is to put the horse down (353), and try to remove the object by syringing with tepid water. Should this not succeed try a soft camel hair brush, dipped in gum water. Should that fail, put the horse under chloroform, which is the only way to keep the eye steady, and take it out with steel forceps. When a particle of iron or steel is partially embedded in the eye, it may sometimes, though very rarely be removed by a magnet. When completely embedded it is less painful, but it will then be necessary to uncover it with a fine needle, so that it can be taken hold of by the forceps. For this purpose the needle may be stuck backwards into the shaft of a feather, to within three quarters of an inch of its point, which will give a secure hold on it. Such operations require a steady hand and a very good eye. In many cases the eye will require the assistance of a powerful glass, though all such movements are better judged and executed without a glass if the eye is good enough, or the object sufficiently large.

CHLOROFORM.

770.—There are many operations that can be better, as well as much more humanely performed, under chloroform. After the horse has been put down (353), a sponge moderately saturated with chloroform should be held to his nostrils, but not so close as to compel him to take all his air through it. Feel the pulse frequently, and if that becomes irregular with now and then a beat missing, take away the sponge and feel the pulse until it beats without intermission, when you may try again more cautiously, or with the sponge a little further away. It should take about three or four minutes to make a horse insensible to pain, but a novice should take care not to unduly hurry the business. You want to paralyze the nerves of sensation, but you must not paralyze the nerves that preside over the action of the heart or lungs. Watch the pulse carefully, and withdraw the sponge as soon as you see the horse is growing insensible to pain. Don't give a breath more than is necessary.

THE PULSE.

771.—Each motion of the heart vibrates through all the main tubes or arteries along which the blood is pumped on its way from the heart, so that each stroke of the heart can be counted, and the strength of its action judged, by putting a finger on an artery at any point where it approaches the skin. In man this is most conveniently done at the wrist; in the horse, inside the jaw bone, not far from its angle.

772.—The number of beats per minute in a healthy horse, in a state of quiet confidence, varies from 42 in the nervous thoroughbred, to 36 in the slow cart horse. Fifty indicates fever, seventy-five something dangerous, and one hundred something that the horse cannot stand long. Exertion, fear, or excitement will set the pulse going, far beyond its natural speed. The horse must be approached slowly and soothingly, to get at the truth, as a rough word or action will be apt to put ten beats on to his pulse at once.

773.—There may be the slow, weak pulse of the feeble heart or oppressed brain; the strong full pulse of fever; the quick, jerking, small, irritated pulse of great pain, as in inflammation of the bowels; the full yet obstructed and weakly vibrated pulse of the gorged blood vessels, as in inflammation of the lungs; or there may be the intermittant pulse, with its sudden stops, as from the too hasty administration of chloroform.

774.—It demands a fine sense of touch, a quiet soothing manner, and some experience to read the pulse well; and then there must be power to understand the language of the expressive nostril, the ear, the eye, the flank, and the foot. To decide correctly all that is wrong with a patient is perhaps the greatest art to be attained by any physician; it is especially so where all has to be learned without the aid of artificial language.

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